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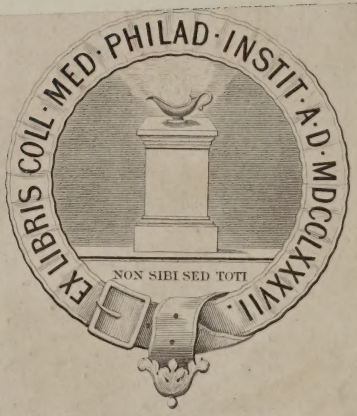

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By a Resolution passed at the session of 1851, the Committee of Publication were instructed to print conspicuously, at the beginning of the volume of the *Transactions*, the following disclaimer:—

"The American Medical Association, although formally accepting and publishing the Reports of the various Standing Committees, holds itself wholly irresponsible for the opinions, theories, or criticisms therein contained, except when otherwise decided by special resolution."

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MINUTES

OF THE

FIFTEENTH ANNUAL MEETING

OF THE

AMERICAN MEDICAL ASSOCIATION,

Held in the City of New York, June 7th, 8th, and 9th, 1864.

UNIVERSITY OF ILLINOIS

CONFORMABLE to regulations, the Association convened on the 7th day of June, 1864, in Irving Hall, and at 11 o'clock A. M. was called to order by the President, ALDEN MARCH, M. D., LL. D., of New York, sustained by Vice-Presidents Drs. JAMES COUPER, of Delaware, DAVID PRINCE, of Illinois, and C. C. COX, of Maryland. The Secretaries, Drs. HOSMER A. JOHNSON, of Illinois, and GUIDO FURMAN, of New York, and the Treasurer, Dr. CASPAR WISTER, of Pennsylvania, were likewise present.

Prayer was offered by the Rev. Dr. DEWITT, of the city of New York, after which

Dr. JAMES ANDERSON, of New York, Chairman of the Committee of Arrangements, made the following report:—

Mr. President, and Delegates to the American Medical Association—

GENTLEMEN: In the discharge of the duty devolved upon me, as Chairman of your Committee of Arrangements, it affords me great pleasure, on this the fifteenth anniversary of the Association, in behalf of your Committee as well as the profession in general, to extend to you a cordial welcome.

This organization, whose germ, first developed in the Medical Society of the State of New York, was perfected on the 7th of May, 1847, by the election of the venerable Dr. Nathaniel Chapman, of

Philadelphia, as its first President, since which time its meetings have been held in nearly all the prominent cities of our country.

Its sole object has ever been the elevation of the dignity and usefulness of the profession, in the endeavor to obtain which, it becomes us, individually as well as collectively, by our advice and example to stimulate to higher attainments, and by our conduct to command respect.

It is now eleven years since your last meeting in this city, around which occasion cluster many pleasant reminiscences, saddened only by the absence of some of the brightest names among your ranks, who have passed to their silent resting-place—names which gave dignity to your body, and wisdom to its counsels.

Your Committee of Arrangements, in due time after their appointment in Chicago, organized, and invited a representation from the hospitals, colleges, and medical societies of this city and Brooklyn, the more effectually to elicit a united expression, and procure a more extensive and general welcome to this national reunion, and have matured such plans as it is hoped will render your stay both instructive and interesting. Guide-books will be furnished to each delegate, with a programme comprising a variety of intellectual as well as social amusements.

Among the institutions which have sprung up since your former visit may be noticed St. Luke's Hospital, on the Fifth Avenue, with a full and efficient medical staff; also a medical college under the auspices of the Commissioners of Charity and Correction, and in connection with the Bellevue Hospital and Almshouse; and in time, through the liberal bequest of the late Mr. Roosevelt, another hospital will be added to the list.

There is a feature, Mr. President, in your present assembling, of deep interest and solemn regret—I allude to that profound silence of several, and the diminished response of other States, which will appear upon the calling of the roll. It would not be proper on this occasion, nor becoming the circumstances under which I appear before you, to allude to its cause.

Let us trust, however, that, through the interposition of an all-wise and overruling Providence, the time is not far distant when we may again offer to our alienated brethren the hand of professional fellowship, which it is our privilege to extend to you this day. I again welcome you all to this metropolis.

On motion, the report was received and adopted.

Dr. ANDERSON, on behalf of the Committee, suggested that the Association should hold two daily sessions—one in the morning, from ten to half-past one o'clock P. M.; and one in the afternoon, from three o'clock until such time as was the pleasure of the body to adjourn.

On motion, this suggestion was ordered to be embodied in the report.

The roll-call being next in order, Secretary FURMAN proceeded to read the names of such as were registered. The roll having been read, it appeared that the U. S. Army and Navy, the District of Columbia, and eighteen States were represented by 465 delegates and 68 permanent members, divided as follows:—

Connecticut,	31	New Hampshire,	6
Delaware,	5	New Jersey,	28
District of Columbia,	10	New York,	248
Illinois,	15	Ohio,	15
Indiana,	2	Pennsylvania,	52
Iowa,	5	Rhode Island,	11
Maine,	5	Vermont,	10
Maryland,	6	Wisconsin,	3
Massachusetts,	66	U. S. A.,	3
Michigan,	7	U. S. N.,	4
Missouri,	1		

The following list contains the names of all delegates and permanent members in attendance during the session:—*

CONNECTICUT.

Central Med. Assoc. of Middlesex Co.,	RUFUS BAKER.
Connecticut General Hospital,	T. BEERS TOWNSEND.
Connecticut State Medical Society,	H. N. BENNETT.
Hartford County Medical Society,	S. C. PRESTON.
Hartford Hospital,	GEO. B. HAWLEY.
Litchfield County Med. Society,	J. G. BECKWITH, HENRY M. KNIGHT, J. W. PHELPS.
Med. Department of Yale College,	WORTHINGTON HOOKER.
Middlesex County Med. Society,	MINER C. HAZEN, ALBERT B. WORTHINGTON.

* If any omissions or errors occur in the following list, the Secretary would respectfully state that *he should not* be held responsible for the same, as *all* such must have taken place in the REGISTERING ROOM. F.

New Haven County Med. Society,	Lucius N. Beardsley, B. H. Catlin, Wm. B. De Forest, Stephen G. Hubbard, Levi Ives, Alvan Tallcott, David A. Tyler, R. F. Stillman.
New Haven Med. Association,	Henry W. E. Mathews.
New Haven City Med. Assoc.,	Chas. L. Lee.
New London Co. Med. Society,	George E. Palmer, Ashbel Woodward.
U. S. Post Hospital, New Haven,	Eli Whitney Blake.
Windham County Med. Society,	Edwin A. Hill, John McGregor.
Permanent Members,	Sheldon Beardsley, Ralph Deming, Jonathan Knight, Samuel S. Noyes, James Welch.

DELAWARE.

Delaware State Med. Society,	Henry F. Askew, James Emory Clawson, James Couper, R. S. W. Hirons, T. C. Rogers.

DISTRICT OF COLUMBIA.

District Medical Society,	Richard C. Croggan, W. I. C. Duhamel, D. R. Hagner, Flodoardo Howard, J. W. H. Lovejoy, James E. Morgan, J. M. Toner.
National Medical College,	John C. Riley.
Med. Dep. of Georgetown College,	Noble Young, Silas L. Loomis.

ILLINOIS.

Adams County Medical Society,	M. F. Bassett.
Chicago Medical Society,	Hosmer A. Johnson, Alexander Fisher, M. O. Heydock, Charles G. Smith.
Illinois State Medical Society,	N. S. Davis, R. C. Hamill, A. L. McArthur, Richard E. McVey, David Prince, Jos. P. Ross, Neh. Wright.
Mercy Hospital, Cook County,	E. Andrews.
Permanent Members,	Geo. K. Amerman, Wm. H. Byford.

INDIANA.

Indianapolis Medical Association,	H. G. Cary.
Indiana State Medical Society,	Jas. F. Hibberd.

IOWA.

Med. Dep. of Iowa University,	A. T. McCurdy, D. L. McGugin.
Scott County Medical Society,	Thos. J. Iles, J. J. Tomson.
U. S. A. Gen. Hospital, Keokuk,	M. K. Taylor.

MAINE.

Maine Medical Association,	Geo. H. Chadwick, Chas. Hutchinson, S. H. Tewksbury, James C. Weston.
Maine Medical School,	David S. Conant.

MARYLAND.

Medical and Chirurgical Faculty of Maryland,	E. C. Baldwin, Thos. E. Bond, Christian C. Cox, F. E. B. Heintze, O. S. Mahon, G. E. Morgan.

MASSACHUSETTS.

Berkshire Medical College,	H. H. Childs, W. Warren Green.
Berkshire County Med. Society,	Nathan S. Babbitt, Henry L. Sabin.
Boston Medical Association,	Daniel T. Coit, Geo. N. Thomson.
Boston Soc. of Med. Observation,	Thos. H. Hoskins.
City Hospital of Boston,	Henry W. Williams.
Essex North Dist. Med. Association,	Oliver S. Lovejoy.
Hampden Medical Society,	John Witter.
Hampshire County Med. Society,	W. M. Trow.
Lowell Hospital,	G. Kimball.
Massachusetts State Med. Society,	Geo. Atwood, John R. Bronson, Henry Clarke, George D. Colony, Perez F. Doggett, C. C. Field, John Green, Benj. F. Heywood, Alfred Lambert, Alfred Livingston, Lebbeus E. Marsh, S. P. Martin, Alfred Miller, Erasmus D. Miller, James M. Nye, J. W. D. Osgood, Edward A. Perkins, Thaddeus Phelps, Jefferson Pratt, Chenery Puffer, Martin Root, Joel Spalding, Francis J. Stevens, Ashmun H. Taylor, Stephen Tracy, Benj. H. Tripp, Geo. A. Ward, Chas. W. Whitcomb.

Middlesex South Dist. Med. Soc.,	Augustus Mason, Harlin H. Pillsbury, John L. Sullivan, Jr.
New England Hospital for Women and Children,	Horatio R. Storer.
Suffolk District Medical Society,	Howard F. Damon, Hasket Derby, John H. Dix, Geo. Fabyan, Alfred C. Garratt, John W. Graves, John Green, Robert Greer, Adino B. Hall, John J. Jarvis, Horace Richardson, A. D. Sinclair, Francis P. Sprague, Duncan M. B. Thaxter.
Thurber Medical Association,	Allen C. Fay.
Worcester District Med. Society,	Joseph N. Bates, D. S. Fisk, H. A. Jewett.
Permanent Members,	S. G. Burnap, B. J. Jeffries, Almon M. Orcutt, Joseph Sargent.

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University of Michigan,	Samuel G. Armor.
Permanent Members,	Homer D. Hitchcock, A. B. Palmer.

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New Hampshire Med. Association,	Albert Smith.

N. Hampshire State Med. Society,	Geo. A. Crosby, Thos. H. Marshall, John L. Swett.
White Mountains Med. Society,	Geo. S. Gove.

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Camden City Medical Society,	Richard C. Dean.
Essex County Medical Society,	Abram Coles, Lott Southard.
Essex County Medical Union,	J. Albert Corwin.
Hudson County Medical Union,	Romeo F. Chabert, Theo. R. Varick.
Hunterdon County Med. Society,	Nathan B. Boileau, J. Alfred Gray.
Monmouth County Med. Society,	J. E. Arrowsmith, Robert R. Conover, John Cooke, Edward Taylor, T. J. Thomason.
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Sussex County Medical Society,	Thos. Ryerson.
Warren County Medical Society,	Geo. D. Fitch.
Permanent Member,	Alex. W. Rogers.

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Alleghany County Med. Society,	E. M. Alba.

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Bellevue Hospital Medical Union, N. Y. City,	Irving W. Lyon, Russ B. Brownell.
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Susquehanna Co. Med. Society,	Calvin C. Halsey, Latham A. Smith.
University of Pennsylvania,	R. E. Rogers.
Permanent Members,	James W. Kerr, John E. Todd. Caspar Wister.

RHODE ISLAND.

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Rhode Island State Med. Society,	S. Aug. Arnold, Ariel Ballou, Otis Bullock, Johnson Gardner, Job Kenyon, Joseph Mauran.

Permanent Members,	Sylvanus Clapp, Lewis L. Miller, Usher Parsons.

VERMONT.

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Vermont State Medical Society,	Chas. S. Downes, Lewis Emmons, Oscar F. Fassett, E. A. Knight, N. H. Knowles, Joseph N. Stiles.

WISCONSIN.

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Wisconsin State Medical Society,	H. Van Dusen.
Permanent Member,	Homer Adams.

ARMY AND NAVY.

Medical Department U.S. Army,	Thos. Antiselle, Chas. S. Tripler, Horace R. Wirtz.
Medical Department U.S. Navy,	B. F. Bache, Chas. Eversfield, Edward Shippen, Thos. L. Smith.

Dr. Cox, of Maryland, moved that Surgeon Chas. S. Tripler, U. S. A., be invited to a seat on the platform. Carried.

It was then moved and carried that a recess of ten minutes be taken, to afford the members of the Association an opportunity to appoint the Nominating Committee.

In accordance with the above motion, the following named members were appointed as such committee:—

B. H. Catlin, Connecticut,	A. E. McCurdy, Iowa,
Henry F. Askew, Delaware,	J. C. Weston, Maine,
Noble Young, Dist. of Col.,	F. E. B. Heintze, Maryland,
W. H. Byford, Illinois,	H. R. Storer, Massachusetts,
Jas. F. Hibberd, Indiana,	S. G. Armor, Michigan,

Geo. W. Phillips, Missouri,
T. D. Marshall, N. Hampshire,
L. A. Smith, New Jersey,
Jas. P. White, New York,
B. B. Leonard, Ohio,
A. Nebinger, Pennsylvania,
Johnson Gardner, R. Island,
J. N. Stiles, Vermont,
J. K. Bartlett, Wisconsin,
Thos. Antiselle, U. S. Army,
Thos. L. Smith, U. S. Navy.

The Committee then retired, and Dr. March, on motion, was requested to read his retiring address as President of the Association.

On motion of Dr. Jewell, of Pennsylvania, it was

Resolved, That a vote of thanks be tendered to Dr. March for his able and interesting address, and that he be requested to furnish a copy for publication.

A motion to change the hour of afternoon meetings from 3 to 4 o'clock was brought up, but lost.

The Association then adjourned till 3 P. M.

Afternoon Session.

The Association was called to order by the President at 3 P. M.

Secretary Furman read the minutes of the morning session, which were corrected and approved.

On calling the roll, it appeared that 215 newly-arrived delegates and permanent members had been registered since roll-call at the morning session.

Dr. Armor, of Michigan, Chairman of the Nominating Committee, made the following partial report:—

PRESIDENT.

N. S. Davis, *of Illinois.*

VICE-PRESIDENTS.

Wm. H. Mussey, *of Ohio,*
Worthington Hooker, *of Connecticut,*
Wm. Whelan, *District of Columbia.*
F. E. B. Heintze, *of Maryland.*

SECRETARY.

Guido Furman, *of New York.*

TREASURER.

Caspar Wister, *of Pennsylvania.*

And recommended Boston, Mass., as the place for holding the next regular meeting.

On motion, the report was accepted.

Dr. RAPHAEL, of New York, moved that the report of the Committee be recommitted, and it be required to nominate at least two persons for the Presidency, to be elected by ballot, and the person receiving a majority of all the votes cast to be declared elected.

Dr. GRISCOM, of New York, moved that the report of the Committee be laid upon the table, and that the proposed amendment to the Constitution, authorizing the present occupant of the chair to preside during the deliberations of this body at the present meeting, be adopted. Lost.

Dr. PALMER, of Michigan, moved that the report presented by the Nominating Committee be adopted.

Dr. JEWELL, of Pennsylvania, moved to suspend the regular order of business, and take up the unfinished business of the Association.

Dr. CURRIE, of New York, moved that members, when speaking, be requested to take a stand upon the platform.

The previous question on Dr. RAPHAEL'S motion to recommit the report being called by Dr. JEWELL, of Pennsylvania, and sustained by the house, the vote was taken and lost.

Dr. PALMER'S motion to adopt the report of the Committee was now put, and carried.

Whereupon the following motion was introduced by Dr. GRISCOM, of New York: That a committee be appointed to escort the newly-elected President and Vice-Presidents to their respective seats. Carried.

The President appointed as such committee to escort the President elect to the chair, Drs. ASKEW, of Delaware, and BISSELL, of New York; as an escort for the Vice-Presidents, Drs. HUBBARD, of Connecticut, PALMER, of Michigan, MORGAN, of Maryland, and JEWELL, of Pennsylvania.

The officers having taken their respective seats, the newly-elected President tendered his thanks for the honor thus conferred upon him, and solicited the kind co-operation of the members in his endeavors to perform the duties of his office.

Dr. ANDERSON, Chairman of the Committee of Arrangements, stated that invitations were extended to the members to visit the following places: U. S. Navy Yard, Brooklyn; Greenwood Cemetery, Long Island; Collegiate and Polytechnic Institute, Brooklyn;

Long Island College Hospital, Brooklyn, U. S. Naval Hospital, Brooklyn; U. S. Soldiers' Depot, New York City.

On motion, the above invitations were accepted, and thanks therefor returned.

The Chairman of the Committee of Arrangements presented the names of the following gentlemen as members by invitation: Drs. P. H. Barton; Geo. R. Brush; H. H. Gregory, New York City; W. Housel; C. E. Knight, Westchester County, N. Y.; H. H. Lyman; Daniel E. McSweeney, New York City; W. H. Nye; J. H. Saunders; Edward M. Stein; and Benj. De Witt, Bradford County, Pa.

On motion, they were elected.

The President appointed the following gentlemen as the Committee to Examine all Voluntary Communications: Drs. A. B. Palmer, Michigan; H. F. Askew, Delaware; Stephen G. Hubbard, Connecticut.

Dr. Ramsay, of New York, moved that the regular order of business be suspended, and that the proposed amendments of the Constitution be taken up. Which was carried, and the following amendment introduced:—

It is hereby ordained that Article 4, Section 1, of the Constitution, be amended as follows: From the second line strike out the words "two Secretaries," and insert "one Permanent and one Assistant Secretary;" and in the fifth line, after the word "officer," insert the words "except the Permanent Secretary;" also add to the same section the following: "The Permanent Secretary shall hold his appointment for ten years, unless sooner removed by death, resignation, or a vote of two-thirds of the members present at a regular annual meeting."

And be it further ordained that Section 5 of the same Article be stricken out, and the following substituted in its place, viz: "The Permanent Secretary shall record the minutes and authenticate the proceedings; give due notice of the time and place of each next ensuing annual meeting; notify all members of committees of their appointment and of the duties assigned to them; hold correspondence with other permanently organized Medical Societies, both domestic and foreign; serve as a member of the Committee on Publication; see that the published Transactions are promptly distributed to all the members who have paid their annual assessment, and carefully preserve the archives and unpublished transactions of the Association.

"The Assistant Secretary shall aid the Permanent Secretary in recording and authenticating the proceedings of the Association, serve as a member of the Committee of Arrangements, and perform all the duties of Permanent Secretary temporarily, whenever that office shall be vacant either by death, resignation, or removal."

And be it further ordained that Article 6, Section 2, be amended by adding after the word "meetings" in the second line the following, viz: "including the necessary expenses of the Permanent Secretary in attending the regular meetings and maintaining the necessary correspondence of the Association."

The proposed amendments having been subjected to two readings, Dr. JEWELL, of Pennsylvania, moved to strike out from the last clause the words "attending the regular meetings and." Which motion was adopted.

Dr. NEBINGER, of Pennsylvania, moved to strike out the word "ten" in the second paragraph, and substitute "five." Lost.

Dr. GRISCOM, of New York, moved to strike out all the words relating to a specified term of years.

Dr. MAURAN, of Rhode Island, moved for the settlement of the question without further debate.

The previous question being called for and sustained, the amendment introduced by Dr. GRISCOM was carried.

The question recurring on the adoption of the proposed amendments as amended by Drs. JEWELL and GRISCOM, it was carried in the affirmative.

On motion, the Association then adjourned until 10 A. M. of the following day, June 8.

SECOND DAY.

WEDNESDAY, JUNE 8. MORNING SESSION.

At 10 A. M., the President, Dr. N. S. DAVIS, called the Association to order.

The minutes of the previous session were approved as read by Secretary FURMAN.

On motion, the following gentlemen were elected members by invitation: Drs. C. W. STEARNS, of New York, formerly of the U. S. A.; JOHN GREENE, of Worcester, Mass.; S. S. NOYES, of Norwalk, Conn.; J. KNIGHT, of New Haven, Conn.; THOS. COCK, of New York City; C. C. KNIGHT; S. H. CASEY, of Oneonta, N. Y.;

Wm. B. Southorn, of Kalamazoo, Mich.; Philander White, of Oswego, N. Y.; F. L. Livingston, of Barrett, Mass.

On motion, the following gentlemen were elected permanent members: Drs. E. Brown-Séquard, of Boston, Mass.; John P. Gray, of the State Lunatic Asylum, Utica, N. Y.; Usher Parsons, of Rhode Island; Timothy Childs, of Massachusetts; Lewis P. Gebhard, of Philadelphia, Pa.

Of these, the following were invited to take seats upon the platform: Drs. C. W. Stearns, John Greene, S. S. Noyes, J. Knight, Thos. Cock, E. Brown-Séquard, John P. Gray, Usher Parsons, Timothy Childs, and L. P. Gebhard.

The reports of the Standing Committees being next in order, were called for by the President, with the following result:—

Committee of Arrangements: No further report.

Committee of Publication: Dr. Askew, of Delaware, submitted the report in behalf of Dr. Smith, of Pennsylvania, Chairman of this Committee.

On motion, the report was accepted and ordered to be placed on file.

Committee on Prize Essays: No member of this Committee appearing, no report was rendered.

Committee on Medical Education: No report.

Committee on Medical Literature: No report. The President announced the death of its late Chairman, Dr. L. M. Lawson, of Ohio, and stated that a report by this Committee was in an advanced stage of preparation at the time of his death.

Committee on American Medical Necrology: Dr. Cox, of Maryland, Chairman of this Committee, stated that a report was nearly completed, and requested that the Committee be enlarged, so as to include one member from each State.

On motion of Dr. Mayburry, of Pennsylvania, it was

Resolved, That the Committee be thus enlarged, and that the report, when complete, be referred to the Committee of Publication.

Committee on Insanity: No report.

REPORTS FROM SPECIAL COMMITTEES.

I. To memorialize the President of the United States respecting the necessity for the organization of an ambulance system for the U. S. Army.

At the request of Dr. Griscom, of New York, Chairman, this Committee was discharged without having made any report.

II. Committee on the Surgical Treatment of Strictures of the Urethra: No report.

III. Committee on Drainage and Sewerage of large Cities, and their Influence on Public Health: No report.

IV. Committee on Puerperal Tetanus, its Statistics, Pathology, and Treatment: The Committee stated that a report had been prepared for the Association, but inadvertently was not then in the Committee's possession, but would be so at the afternoon or to-morrow morning's session.

On motion, the report was referred to the Section on Practical Medicine and Obstetrics.

V. Committee on Anæmia and Chlorosis: No report.

VI. Committee on Alcohol and its Relations to Man: No report.

VII. Committee on Milk-Sickness: Dr. THOMPSON, Chairman of this Committee, reported that much information had been collected on this subject, but was not yet reduced to a proper form for a report, for want of co-operation from the other members of the Committee.

On motion, it was

Resolved, That the Committee be requested to complete its report, and transmit the same, when completed, to the Section on Meteorology, Medical Topography, Epidemic Diseases, and Medical Jurisprudence and Hygiene.

VIII. Committee on Microscopic Observations of Cancer-Cells: No report, the Committee being now absent in Europe.

On motion, it was resolved to continue the same Committee.

IX. Committee on Compulsory Vaccination: This Committee presented a report, through its Chairman, Dr. HIBBERD, of Indiana.

On motion, it was read before the Association, and by it referred to the Section on Epidemic Diseases, etc.

X. Committee on the Hygienic Relations of Air: No report.

On motion, the whole Committee was discharged, in compliance with the request of its Chairman, Dr. COX, of Maryland.

XI. Committee on Quarantine: Dr. CLARK, of Pennsylvania, Chairman of this Committee, reported progress through the following letter:—

PHILADELPHIA, June 6, 1864.

DEAR SIR: As Chairman of the Committee on Quarantine for the American Medical Association for this year, I desire through you to report progress, and to state that, owing to ill health, I have been unable to make a proper report for this year.

Should the Association think fit to retain me for the coming year, I will endeavor to present a paper at that time.

With kind regards for the Association and its members, I am, sir,

Very respectfully, your obedient servant,

D. D. CLARK, M. D.

To GUIDO FURMAN, M.D., *Secretary.*

On motion, the excuse was accepted, and the same Committee continued.

XII. Committee on the Entrance of Air into the Circulation through the Uterine Sinuses: This Committee presented a report, which, on motion, was referred to the Section on Practical Medicine and Obstetrics.

XIII. Committee on Exsection, and its Connection with Conservative Surgery: The Committee made no report, the members thereof not having received any notice of their appointment.

Wherefore, on motion, the Committee was continued.

XIV. Committee on Military Hygiene: Dr. Andrews, of Illinois, Chairman of this Committee, stated that a report was prepared.

On motion, it was referred for reading to the Section on Hygiene.

XV. Committee on Medical Ethics: No report.

XVI. Committee on Tracheotomy in Membranous Croup: No report.

On motion, it was resolved to continue this Committee.

XVII. Committee on the Effects of Perineal Operations for Urinary Calculi upon Procreation in the Male: No report.

XVIII. Committee on Mercurial Fumigation in Syphilis: No report.

XIX. Committee on the Cause and Increase of Crime, and its Mode of Punishment: No report.

In relation to this Committee, the Secretary presented the following communication:—

FRANKFORT, Sept. 9, 1863.

Dr. Guido Furman, New York City:

DEAR SIR: Your letter directed to Dr. W. C. SNEED, in regard to the appointment of him by the Medical Association as the Special Committee on Crime and its Increase, was received a few days since. Absence from the city is the reason why I have not answered sooner. It is with deep sadness that I inform you that Dr. SNEED departed this life in November last. Return to the Association the thanks of the doctor's widow and orphans for the compliment paid him. I have the honor to be, very respectfully, yours,

W. H. H. SNEED.

XX. Committee on the Microscope: Dr. ANDERSON, Chairman of the Committee of Arrangements, presented the following communication:—

BURLINGTON, VT., May 30, 1864.

SIR: Some time after leaving the army, I learned that the Association had done me the honor to continue my name in connection with a report on the microscope to the approaching meeting. I regret that time has failed me to prepare a suitable report, and would suggest that, as the microscope is but the instrument of several departments of medical science, these should furnish the subjects on which reports may be desired, and limit their field.

I would respectfully request to be relieved from the present appointment, remaining, however, at the service of the Association.

Very respectfully your obedient servant,

R. CRESSON STILES.

JAS. ANDERSON, M. D., *Chairman of Committee of Arrangements.*

On motion, the request was granted, and the Committee discharged.

XXI. Committee on Gangrene of the Lungs: No report.

XXII. Committee on Typhlitis and Peri-Typhlitis: No report.

XXIII. Committee on the Relations which Electricity sustains to the Causes of Disease: No report.

XXIV. Committee on the Morbid and Therapeutic Effects of Mental and Moral Influences: No report.

XXV. Committee on the Causes of the Extinction of the Aboriginal Races of America: The Secretary submitted, in behalf of this Committee, the following note:—

MEDICAL DIRECTOR'S OFFICE, DEFENCES OF BALTIMORE,
BALTIMORE, MD., Sept. 4, 1863.

DEAR SIR: Yours of the 1st inst. is received. I believe that there is an error in calling my committee as the one to report "On the Causes of the Extinction of the Aboriginal Races of *America*." As I understood it, I was to report on the causes of the extinction of *aboriginal races*, which would include New Zealanders, Australians, negroes, *et al.*

I don't believe my military duties will allow the report to be finished before 1865; but I will try.

Very respectfully your obedient servant,

GEO. SUCKLEY,

Surgeon U. S. Vols., Medical Director Defences of Baltimore.

GUIDO FURMAN, M. D., *Sec. Am. Med. Assoc.*

On motion, this Committee was continued.

XXVI. Committee on the Sulphites of Lime and Soda in the Treatment of Hospital Gangrene, Phlebitis, Erysipelas, and other Zymotic Diseases: The Committee, Dr. FISHER, of Illinois, stated that a report was ready.

On motion, it was resolved to refer the same to the Section on Practical Medicine.

XXVII. Committee to report on the Practical Workings of the U. S. Law relating to the Inspection of Drugs and Medicines: Dr. SQUIBB, of New York, the Chairman of this Committee, transmitted, through the Chairman of the Committee of Arrangements, the following letter:—

BROOKLYN, May 31, 1864.

Dr. James Anderson, Chairman of the Committee of Arrangements—

DEAR SIR: I have for presentation to the American Medical Association, at its approaching meeting, a report of the Special Committee on the Practical Working of the U. S. Drug Law, which will require but a minute or two to read, and perhaps as much more time for explanation.

I have also a volunteer paper of my own upon the practical working of the U. S. drug law, which will occupy ten or perhaps fifteen minutes to read, should the Association choose to receive it. This should follow the report of the Committee.

Very respectfully,

E. R. SQUIBB.

On motion, this report and voluntary communication were made the special order for eleven o'clock on Thursday morning.

XXVIII. Committee on the Cause and Treatment of Ununited Fractures: No report, the member constituting this Committee being dead.

XXIX. Committee on the Dislocation of the Hip and Shoulder: No report.

The Committee requested to be discharged, which request, on motion, was granted.

XXX. Committee on Diphtheria: No report.

XXXI. Committee on the Use and Abuse of Pessaries: Dr. A. K. GARDNER, of New York, presented a report thereon, which was, on motion, referred to the Section on Obstetrics.

XXXII. Committee on International Medical Ethics (to investigate the condition demanded for a diploma of Doctor of Medicine in the various medical schools and universities of Europe): No report.

XXXIII. Committee on Collection of Medical Periodicals: No report.

XXXIV. Committee on Medical Topography and Epidemic Diseases: A communication was presented from Dr. LOGAN, of California, by the Secretary. Dr. L. stated that much material for a report had accumulated on his hands, but as he was still engaged in securing many valuable and interesting facts in all portions of that State, he requested an extension of time, so as to be able to render a full report.

On motion, the time was extended.

A report, entitled "Report on the Medical Topography and Epidemic Diseases of the State of Rhode Island, by CHAS. W. PARSONS, M. D., of Providence, R. I.," with the following communication, was presented by the Secretary:—

PROVIDENCE, June 4, 1864.

Guido Furman, M. D., Secretary of the Amer. Med. Association—

DEAR SIR: May I trouble you to put this report in a way of being placed before the Association? I shall not probably be able to attend, and know not in what better way to communicate with the Association.

I have made a sketch of a map, which, in the event of the paper being published, might be dressed into respectable appearance by the engraver's art. It would be of some use in illustrating the text, but not at all necessary or indispensable.

Yours, truly,

CHARLES W. PARSONS.

On motion, the report was sent to the Section on Epidemic Diseases, etc.

At this stage of the proceedings, the Chairman of the Committee on Nominations presented the following additional report:—

Committee of Arrangements.—Drs. H. J. BIGELOW, H. W. WILLIAMS, A. D. SINCLAIR, HENRY DAMON, J. NELSON BORLAND, A. B. HALL, J. BAXTER UPHAM.

Committee on Publication.—Drs. F. G. SMITH, Pennsylvania; EDWARD HARTSHORNE, Pennsylvania; H. F. ASKEW, Delaware; H. A. JOHNSON, Illinois.

Committee on Prize Essays.—Drs. D. H. STORER, J. M. WARREN, H. J. BOWDITCH, J. H. DIX, Massachusetts.

Committee on Medical Education.—THOS. ANTISELLE, District of Columbia; GEORGE FRIES, Ohio; E. R. PEASLEE, New York; J. F. HIBBERD, Indiana; C. W. PARSONS, Rhode Island.

Committee on Medical Literature.—Drs. CHAS. A. LEE, New York; THOS. F. ROCHESTER, New York; C. C. COX, Maryland; ALBERT SMITH, New Hampshire; ANDREW NEBINGER, Pennsylvania.

Committee on Necrology.—Drs. C. C. COX, Maryland; J. W. HAMILTON, Ohio; M. K. TAYLOR, Iowa; H. VAN DUSEN, Wisconsin; NOBLE YOUNG, District of Columbia; JOSIAH SIMPSON, U. S. Army; JAS. C. WESTON, Maine; HENRY BRONSON, Connecticut; HENRY NOBLE, Illinois; CHAS. EVERSFIELD, U. S. Navy; T. B. HARVEY, Indiana; T. P. FITCH, New Hampshire; WM. MAYBURRY, Pennsylvania; JAMES COUPER, Delaware; M. L. LINTON, Missouri; H. T. STEVENS, Vermont; HENRY CLARK, Massachusetts; JOHN H. GRISCOM, New York; E. M. MOORE, New York; G. W. STORMANT, Kansas; WM. B. LITTLE, California; D. W. HAND, Minnesota; HENRY MILLER, Kentucky; J. C. HUPP, Virginia; S. G. ARMOR, Michigan; JOS. MAURAN, Rhode Island; WILLIAM PEARSON, New Jersey.

On motion, the report was adopted by the Association.

The Chairman of the Committee of Arrangements presented the following note:—

James Anderson, M. D., Chairman, &c.—

DEAR SIR: As Chairman of the Committee of the American Medical Association having charge of such matters, I beg leave to request through you the privilege of presenting to that body, at such time as they may see fit to appoint, a case in which an extensive destruction of the face by cancrum oris has been successfully repaired by a series of plastic operations. The patient himself will be exhibited, as well as various plastic masks and photographic drawings illustrating the several operations. The extraordinary interest possessed by this unique case, it is believed, will warrant the undersigned in respectfully soliciting the indulgence of the Association for one hour for the purpose of exhibiting it to their notice.

Awaiting a reply at your earliest convenience, I remain,

Very respectfully yours, &c.,

GURDON BUCK.

No. 121 Tenth St., May 30, 1864.

On motion, Dr. BUCK's case was referred to the Section on Surgery.

By the same the following communication was presented:—

28 East Twentieth St., New York, June 2, 1864.

Dr. Anderson, Chairman of Committee of Arrangements—

Dear Sir: I desire to present the subject of "Treatment of Congenital Fissure of the Palate by Mechanical Appliances" before the American Medical Association at the forthcoming meeting. Will you please assign me time for remarks and the exhibition of cases for illustration, not to exceed one hour, and much oblige,

Very respectfully yours,

NORMAN W. KINGSLEY.

June 2, 1864.

The undersigned regards the subject which Mr. Kingsley desires to lay before the American Medical Association, and his invention for the relief of the deformity in question, as one of great interest, and well deserving the attention of the Association.

GURDON BUCK, M. D.

On motion, Dr. Kingsley's subject was disposed of in like manner.

Dr. Palmer, of Michigan, Chairman of the Committee on Voluntary Communications, reported the following papers:—

On the Physiological and Dietetic Relations of Phosphorus. By John Griscom, M. D., of New York.

On Sanitary Science and Mortuary Statistics of the City of New York, from 1851 to 1864. By Cyrus Ramsay, M.D., of New York.

Which were, on motion, referred to the Section on Hygiene, etc.

The same Committee introduced the following preamble and resolution:—

Whereas, By great and unremitted exertion, as appears by the records of the Massachusetts Senate for the year 1842, Dr. Appleton Howe, of South Weymouth, Mass., and Dr. Johnson Gardner, now of the city of Providence, R. I., but both Senators of Massachusetts at the date aforesaid, introduced, advocated, and procured the passage in that body of the first law ever enacted in these United States for the registration of births, marriages, and deaths;

And whereas, Said law, then violently opposed, and deemed by many not only of minor importance, but wholly unnecessary and inexpedient, has since commended itself to the favorable consideration of physicians and legislators throughout the country; therefore,

Resolved, That the American Medical Association, fully appreciating the great benefits derived from said law, and the services to the country of said Howe and Gardner in procuring the passage

thereof, take pleasure in recognizing the act as having originated in the wisdom of the legislature of the old Bay State.

On motion, the resolution was adopted.

Dr. WISTER, of Pennsylvania, presented the Treasurer's report, which was, on motion, accepted.

Dr. PERCY, of New York, offered the following resolution:—

Resolved, That the Committee of Publication be instructed to deliver to the Secretary of the Association the die from which the gold medal was struck, as the property of the Association.

Which was carried.

Dr. PALMER, of Michigan, Chairman of the Committee to Examine Voluntary Communications, presented a paper prepared by Dr. CHAS. F. TAYLOR, of New York, entitled "The Pathology of the Lateral Curvature of the Spine."

On motion, the same was referred to the Section on Surgery.

The Chairman of the Committee of Arrangements proposed the following gentlemen as members by invitation: Drs. G. G. BARTON, of Washington County, Ind.; H. H. NYE, J. W. SAUNDERS, and H. H. LYMAN, of Alleghany County, New York; and they were elected.

The same Committee presented the following communication:—

12 WEST THIRTY-FIFTH ST., NEW YORK CITY, June 8, 1864.

Dr. James Anderson, Chairman of Committee of Arrangements, American Medical Association—

SIR: I am authorized by Mr. D. T. Valentine, Clerk of the Common Council, New York, to inform you that the Common Council of New York will forward to each member of the Association a copy of the Manual of the city, on being furnished with a list of the delegates and their post office address.

I am, very respectfully,

E. LEE JONES.

On motion, the offer was accepted, and the following resolution introduced:—

Resolved, That the thanks of the Association are unanimously due, and are hereby tendered, to the Common Council of the city of New York, for liberally donating to each delegate of this Association a copy of the Manual of the Corporation for 1864, edited by D. T. Valentine, Clerk of said Common Council.

Which was carried unanimously.

On motion, the Secretary of the Association was instructed to

forward a list of the members in attendance, with their address, to Mr. Valentine.

Dr. GARDNER, of New York, presented the following preamble and resolutions, which he hoped would meet with the cordial approval of the Association:—

Whereas, It is the duty and great distinction of Christian nations, and in conformity with the highest instincts of humanity, to assuage the sufferings and mitigate the horrors of war in every possible manner, in which attempt the medical profession has ever been eminently conspicuous; and

Whereas, The stringency of our blockade of the Southern coast has, to a great extent, deprived the sick and wounded, the feeble babe, the helpless woman, the aged man, as well as the sufferers by wounds and disease in the ranks of our enemies, of needful appliances to relieve pain and to save life; and

Whereas, From the same cause thousands and tens of thousands of our own brave sons and brothers, fighting for the holy cause of our glorious Union, and left wounded on the battle-field in the hands of the enemy, have been compelled to have operations performed without the relief and benefit which chloroform would bring, and have lain in suffering unto death in the hospitals of the South from the absolute destitution of the country of many needful medicines and instruments of surgery; and

Whereas, These articles are in no respect to be considered as among the "sinews of war," and, as has been seen, are not material to a vigorous prosecution of rebellious warfare; and

Whereas, This Association, numbering among its lawful members the medical men of the entire thirty-four States of the Union, we deem it eminently fitting that we should urge upon the Government and the people of the United States to remember the universal brotherhood of man and the undying attributes of humanity; it is therefore unanimously

Resolved, That the Association request the President of the United States to take such action as shall cause all medicines and medical and surgical instruments and appliances to be excluded from the list of articles called "contraband of war," and that such articles in any quantity may be purchased by any person in any State of the Union, and may be conveyed beyond our lines under a flag of truce, after proper inspection, so as to give every necessary comfort to relieve any human suffering, whether of our own soldiers or that of the enemy.

Resolved, That a copy of the above preamble and resolution be sent to the President and heads of Departments, and to each and every member of the United States Senate, and attested by the officers of this Association; and that every member be requested to use all the influence in his power in stripping this fratricidal war of some of its unnecessary horrors, and thereby to inaugurate the re-establishment of more kindly feelings, and to smooth away some of the obstructions to the reconciliation of our misguided brethren.

Resolved, That a committee, representing every State of the Union here present, be appointed to present these resolutions to the President.

Dr. LOOMIS, of the District of Columbia, moved to lay the whole matter on the table.

Dr. MAYBURRY, of Pennsylvania, moved to amend the motion to lay upon the table by adding the word "indefinitely," which amendment was accepted by Dr. LOOMIS, and the motion, as amended, declared carried.

Dr. COX, of Maryland, offered the following resolutions, which, on motion, were carried:—

Resolved, That a committee of five be appointed to memorialize Congress, at its present session, if possible, in regard to the passage of a law for the improvement of the rank of medical officers of the army, and that the memorial, together with a draft of the proposed law, be printed and sent to each Senator and Representative in the national legislature.

Resolved, That the members of the American Medical Association are earnestly requested to communicate promptly with members of Congress from their respective districts in relation to the object of this resolution, and to urge the enactment of such law as may confer proper rank upon a branch of the military organization of the country whose important services and claims have never been adequately appreciated or recognized.

In accordance with the foregoing resolution, the Chair appointed as such Committee: Drs. C. C. COX, of Maryland; D. L. MCGUGIN, of Iowa; THOS. ANTISELLE, of the District of Columbia; FRANK H. HAMILTON, of New York; HENRY F. ASKEW, of Delaware.

Dr. FURMAN, of New York, introduced the following:—

Resolved, That the thanks of the Association are due, and are hereby tendered, to Dr. ALDEN MARCH, of New York, for the able, impartial, and dignified manner in which he presided over the deliberations of this body.

Which was carried.

The following amendments to the Constitution were introduced:—

1. Moved by Dr. S. L. Loomis, of Washington, D. C., to amend the Constitution, providing for the appointment of a Treasurer and an Assistant Treasurer, to hold their appointments for three years, when the Assistant Treasurer shall become Treasurer, and a new Assistant Treasurer shall be elected, thus electing an Assistant Treasurer every three years.

2. Moved by Dr. S. L. Loomis, of Washington, D. C., to amend the Constitution, providing for the appointment of a Committee on Transportation, consisting of five members, two of which shall be elected each year.

3. Moved by Dr. C. C. Cox, of Maryland, to strike out the 15th paragraph of Article 2d of the Constitution, commencing with the words "No permanent member," and terminating with the words "the next volume of *Transactions*."

On motion, the Association then adjourned until 10 o'clock A.M., Thursday, June 9.

THIRD DAY.

Thursday, June 9. Morning Session.

The President called the Association to order shortly after 10 o'clock A. M.

The journal of the previous afternoon's session was read, and, on motion, adopted.

The roll was then called by Secretary Furman.

Dr. Mauran, of Rhode Island, called the attention of the Association to the following two prizes offered by the Rhode Island State Medical Society:—

1. What evidence is there that inflammatory and febrile diseases have undergone any general change of type?

2. The effects of climate in America on tuberculous diseases.

For the best dissertation on either one of these subjects it offers a premium of one hundred dollars. The competition is open to all. Every competitor is expected to forward to the Secretary (S. Aug. Arnold, M. D., of Providence, R. I.) of the Fiske Fund Trustees, on or before the first day of May, 1865, free from all expense, a copy of his dissertation.

Dr. Cox, of Maryland, Chairman of the Committee appointed to memorialize the President of the United States in reference to the

increase of rank and pay of medical officers in the U. S. Army, introduced the following:—

Resolved, That Surgeon CHAS. S. TRIPLER, of the U. S. Army, be added to that Committee, and be appointed the Chairman of the same.

Which was carried.

The reports of Committees being in order, the President called for those which had not yet been submitted.

Committee on Insanity: The Secretary presented the following communication from the Chairman of this Committee:—

CENTRAL OHIO LUNATIC ASYLUM, COLUMBUS, O., June 4, 1864.

Dr. Guido Furman, Secretary, &c.—

DEAR SIR: I find it absolutely impossible to be present at the coming meeting of the American Medical Association. I have also been prevented from completing my report upon Insanity so that I should be satisfied to transmit it to the Association at this time.

As no report had been made for several years, according to my information, I had hoped to acknowledge the high honor of the appointment by giving the Association an elaborate report; but the breadth of foundation laid for it has prevented (with other causes) its completion in time for this meeting.

If consistent with the rules of that Association, and it be the pleasure of that body, I would respectfully ask for an extension of time until the next meeting of the Association in which to present the report.

Most respectfully yours,

R. HILLS,

Chairman of Committee on Insanity.

On motion, the time was extended.

On motion of Dr. GRISCOM, of New York, Dr. E. H. VAN DUSEN, of Kalamazoo, Mich., was added to the Committee on Insanity.

Committee on Prize Essays: The Chairman of the Committee not being present, the calling for the report was deferred.

The report from the Committee on Compulsory Vaccination, referred yesterday to the Section on Epidemics, etc., was taken up. On motion, the report was accepted, the resolutions therein contained adopted, and the whole referred to the Committee of Publication.

To carry out the spirit of the resolutions therein contained, the President appointed the following Committee: Dr. A. N. BELL, of Brooklyn, N. Y.; JONAS P. LOINES, H. D. BULKLEY, of New York

City; ANDREW NEBINGER, of Philadelphia, Pa.; JAS. F. HIBBERD, of Richmond, Ind.

Dr. BUTLER, of Philadelphia, the Chairman of the Section on Medical Topography and Epidemic Diseases, submitted a report from that Section, which, on motion, was adopted in full. The resolutions appended to it are as follows:—

Resolved, That the Association deems it a duty to institute measures looking to the vaccination, ultimately, of every person living within the limits of country over which it exercises jurisdiction.

Resolved, That a Central Committee of five be appointed, to enlighten the public mind, by all available means, upon the value and necessity of universal vaccination.

Resolved, That the Central Committee be authorized to appoint associate and auxiliary committees in each State.

In accordance with a resolution passed yesterday, Dr. SQUIBB presented the report from the Committee on the Practical Workings of the U. S. Law relating to the Inspection of Drugs and Medicines, as prepared by him. Dr. SQUIBB stated that the gentlemen composing that Committee could not agree upon the report prepared for their action; and inasmuch as, at the time it was presented for their consideration, there was no opportunity for an interchange of views upon the subject, they respectfully requested that, as a committee, they should be discharged.

On motion of Dr. GARDNER, of New York, the report was accepted and the Committee discharged.

Dr. SQUIBB then read, by invitation, a voluntary communication upon the same subject, which, on motion, was accepted, and referred to the Section on Chemistry, etc.

Dr. STORER, of Massachusetts, Secretary of the Section of Practical Medicine and Obstetrics, submitted a report of the meeting of that Section held the afternoon before, to which were appended the following resolutions:—

Resolved, That, in the opinion of the American Medical Association, it is expedient that there should be attached to every public hospital for the insane one or more consulting physicians, whose appointment should be honorary, and who may be consulted at the discretion of the superintendent, such measure being alike for the interest of the hospital, its medical officers, and its patients.

Resolved, That a copy of the above resolutions be transmitted to the Board of Trustees of each of our public hospitals for the insane, and also to the Secretary of the Association of American Superin-

tendents for the Insane, and request that it may be indorsed by that body, and the action proposed be urged upon the respective boards with which its members are officially connected.

On motion, the report was received.

Dr. GRISCOM, of New York, moved to strike out in the first resolution, "whose appointment should be honorary." Carried.

On motion, the first resolution, as amended by Dr. GRISCOM, was adopted.

On motion, the second resolution was adopted.

On motion, the whole report was adopted.

The Nominating Committee being desirous of making a final report, Dr. GRISCOM, of New York, asked permission to introduce a resolution, pertinent to the election of a Permanent Secretary, prior to the presentation of such report.

On motion, Dr. GRISCOM obtained, by general consent, the desired permission, and introduced the following resolution:—

Resolved, That the Permanent Secretary shall be entitled to a compensation of $—— per annum, payable out of any surplus funds of the Association, after all other claims and debts against the Association for each current year shall have been paid.

Dr. KENNEDY, of New York, moved that a salary of $1,500 per annum be attached to the office of Permanent Secretary.

Dr. SAYRE, of New York, moved to amend the motion by substituting $5,000.

The Chair called the attention of the members present to the clause in the Constitution providing for the reimbursement of the Permanent Secretary "in maintaining the necessary correspondence of the Association." He therefore should rule the question out of order.

Dr. GRISCOM, of New York, appealed from the decision of the Chair, which appeal he afterwards withdrew.

Dr. KENNEDY, of New York, moved a reconsideration of the ordinance in the Constitution adopted yesterday. Lost.

Dr. SAYRE, of New York, moved that the members every year in attendance should tax themselves sufficiently to pay a salary of $1,500 to the Permanent Secretary. Lost.

Dr. PALMER, of Michigan, moved to lay the further discussion of this matter on the table. Carried.

On motion, the Nominating Committee submitted their final report, as follows:—

PERMANENT SECRETARY.

Dr. W. B. ATKINSON, *Pennsylvania.*

ASSISTANT SECRETARY.

Dr. H. R. STORER, *Massachusetts.*

Committee on Insanity.—Drs. HORATIO R. STORER, Massachusetts; JESSE P. BANCROFT, New Hampshire; E. H. VAN DUSEN, Michigan; R. J. PATTERSON, Iowa; J. H. WOODBURN, Indiana; JOSHUA H. WORTHINGTON, Pennsylvania.

Committee on Exsection, and its Connection with Conservative Surgery (enlarged).—Drs. LEWIS A. SAYRE, New York; G. W. NORRIS, Pennsylvania; G. C. BLAKEMAN, Ohio; S. H. TEWKSBURRY, Maine; E. ANDREWS, Illinois; GEO. B. TWITCHELL, New Hampshire; J. C. HUGHES, Iowa; GEO. CLYMER, U. S. N.; J. R. W. DUNBAR, Maryland; R. H. GILBERT, U. S. A.

Committee on Drainage and Sewerage of large Cities, and their Influence on Public Health.—Drs. WM. I. C. DUHAMEL, District of Columbia; E. C. BALDWIN, Maryland; CYRUS RAMSAY, New York.

Committee on Alcohol and its Relations to Man.—Dr. G. E. MORGAN, Maryland.

Committee on Microscopic Observations on Cancer-Cells.—Dr. LEONARD J. SANFORD, Connecticut.

Committee on Quarantine.—Committee continued.

Committee on Medical Ethics.—Drs. JOHN A. MURPHY, Ohio; M. L. LINTON, Missouri; B. F. SCHENCK, Pennsylvania; SWAINE WICKERSHAM, Illinois; A. J. FULLER, Maine.

Committee on the Microscope.—Dr. JAS. M. CORSE, Pennsylvania.

Committee on the Relations which Electricity sustains to the Causes of Disease.—Dr. SQUIRE LITTELL, Pennsylvania.

Committee on the Morbid and Therapeutic Effects of Mental and Moral Influences.—Dr. A. B. PALMER, Michigan.

Committee on the Causes of the Extinction of the Aboriginal Races of America.—Committee continued.

Committee on the Causes and Treatment of Ununited Fractures.—Dr. FRANK H. HAMILTON, New York.

Committee on Diphtheria.—Dr. LUCIUS CLARK, Illinois.

Committee on the Uses and Abuses of Pessaries.—Dr. JAS. P. WHITE, New York.

Committee on International Medical Ethics (to investigate the conditions demanded for a diploma of Doctor of Medicine in the various medical schools and universities of Europe).—Drs. J. BAXTER UPHAM,

Massachusetts; Robt. Thompson, Ohio; Geo. Shattuck, Massachusetts; G. C. E. Weber, Ohio.

Committee on Climatology and Epidemic Diseases.—Drs. C. W. Parsons, Rhode Island; P. A. Stackpole, New Hampshire; Thos. M. Logan, California; R. C. Hamill, Illinois; J. C. Weston, Maine; B. H. Catlin, Connecticut; C. L. Allen, Vermont; Thos. Antiselle, District of Columbia; J. W. H. Baker, Iowa; Abm. Sager, Michigan; O. S. Mahon, Maryland; J. W. Russell, Ohio; D. F. Condie, Pennsylvania; Howard Townsend, New York.

Committee on Autopsies in Relation to Medical Jurisprudence.—Dr. T. C. Finnell, New York.

Committee on so-called Spotted Fever.—Dr. J. J. Levick, Pennsylvania.

Committee on the Introduction of Disease by Commerce, and the Means for its Prevention.—Dr. A. Nelson Bell, Brooklyn, N. Y.

Committee on Patent Rights and Medical Men.—Drs. David Prince, Illinois; Thos. Antiselle, District of Columbia; Stephen Smith, New York.

On motion, the report was accepted.

Dr. Kennedy, of New York, introduced the following:—

Resolved, That the name of Dr. Guido Furman, of New York, the present incumbent in office, be substituted for that of Dr. W. B. Atkinson, of Pennsylvania, as Permanent Secretary of the Association.

Dr. Nebinger, of Pennsylvania, moved the adoption of the report as presented by the Committee.

The previous question being called for and sustained, a vote was taken. The Chair expressing itself in doubt as to the result, a count was called for, and the motion was lost by a vote of 56 in the affirmative, and 72 in the negative.

The question recurring on the motion of Dr. Nebinger, of Pennsylvania, to adopt the report as presented by the Nominating Committee, it was carried.

On motion, the election of Dr. Atkinson was made unanimous.

A motion that a special committee be appointed, to report at the next meeting, On the Ligature of the Subclavian Artery, was adopted, and the following gentlemen selected as such committee: Drs. Willard Parker, Jas. H. Armsby, of New York; Geo. W. Norris, of Pennsylvania; and W. H. Mussey, of Ohio.

Dr. Peaslee, of New York, from the Committee on Prize Essays, submitted the following report:—

The Committee on Prize Essays beg leave to report that they have received two essays in competition for the prize offered by the American Medical Association. After a careful examination of these essays, they have agreed to recommend the one "On the Pathology of Jaundice," bearing the motto "*Dermocholepoësis*," for the prize offered by the Association; and would suggest to the author of the essay bearing the motto "*Homines enim ad Deos nulla reproprius accedunt quam salutem hominibus dando*," to publish the same in some one of the professional journals.

D. FRANCIS CONDIE,
ALFRED STILLÉ,
June 4, 1864. E. R. PEASLEE.

Drs. W. JEWELL and E. WALLACE read and assented to the above.
E. R. PEASLEE.

The same Committee stated further that upon breaking the seal of the accompanying letter marked "*Dermocholepoësis*," they learned that the successful essayist was Dr. S. FLEET SPEIR, of New York.

On motion, the report was accepted, and the Treasurer authorized to award to Dr. SPEIR the prize of one hundred dollars.

Proposed amendment to the Constitution, by E. R. PEASLEE, of New York:—

The Committee on Prize Essays recommend that the By-Laws be so amended as to require that all essays in competition for the prize be presented at least one month previously to the session of the Association.

The following unsigned note was received and read by the President:—

"The delegates to the National Sanitary Convention, appointed in 1860 to meet at Cincinnati, who are present, are requested to assemble for half an hour in the committee rooms, second floor, immediately upon the reading of this notice, for a conference relative to a reorganization of the Convention."

The Association then adjourned until 4 P. M.

THURSDAY. AFTERNOON SESSION.

The Association reassembled at 4 o'clock P. M., and was duly called to order by the President.

The Chairman of the Committee of Arrangements announced the following gentlemen as members by invitation: Drs. BARENT STAATS, New York; E. M. HUNT, New Jersey; H. G. GULEY, Indiana. All of whom were duly elected.

Dr. C. C. Cox submitted the following resolution:—

Resolved, That a committee of three, consisting of Dr. T. L. Smith, of New York, Dr. Wilson Jewell, of Pennsylvania, and Dr. B. F. Bache, U. S. N., be appointed to memorialize Congress upon the subject of the attempted wrong to the Medical Corps of the Navy, as indicated by a widely circulated protest of the line officers of that branch of the service, against the very moderate increase of rank given to medical officers by a General Order of the Department of the 13th March, 1863, which increase in rank by no means corresponds in extent to the advancement in rank of the officers of the line thus protesting.

Carried.

Dr. Raphael, of New York, introduced the following amendment to the Constitution:—

Resolved, To amend the 4th Article of the Constitution so as to insert after the word "ticket," 5th line, the words "except in case of the President, who shall be nominated, and elected by ballot, in open session of the Society; the member receiving a majority of all the votes cast to be declared elected."

Dr. Duhamel, of Washington, D. C., offered the following:—

Resolved, That the members of the American Medical Association tender their thanks to the gentlemen of the medical profession of the city of New York, for the hospitality and civilities extended to them during their stay here.

Resolved, That we also tender our thanks to Mayor Gunther and the gentlemen of the public institutions, who have extended to the members of the Association much kindness and attention.

Carried in the affirmative.

By Dr. McGugin:—

Resolved, That the Committee appointed for the purpose of drafting a suitable bill to be presented to Congress for its consideration and adoption, on the subject of the relative rank of medical officers of the army, be and they are hereby instructed to embrace in its provisions a further separation of the Medical Department from the commanding officers of the line, in order to have a more perfect and unrestrained control of its interests and greater efficiency in that branch of the service.

Carried.

Also by Dr. McGugin:—

Resolved, That each member of the Association is hereby earnestly requested to furnish to the Chairman or any member of the Stand-

ing Committees appointed to report upon the subject assigned them, at the next annual meeting, all facts in his possession, and his experience touching the subject-matters upon which said Committees are required to report.

Carried.

By Dr. PALMER, of Michigan:—

Resolved, That, as the representatives of the profession of the country, meeting at the moment when the greatest military collision of modern times is at its acme, producing almost unprecedented numbers of wounded and suffering men, calling for the greatest skill and devotion, imposing the deepest responsibilities, the most intense labors, and the most patient and painful endurance on the part of the military surgeons, we cannot separate without a formal and heartfelt recognition of the services of our brethren in the field and hospitals, who have been and are at this moment so nobly responding to all these demands, and while cherishing their immense and invaluable services as an honor to our profession, we commend these men and the memory of their deeds in the cause of *science* and patriotism, of civil government, of union, of liberty, of humanity, to the gratitude of the country, whose life, as well as that of their heroic patients, they are laboring to preserve.

Carried unanimously.

By Dr. HOLTON, of Vermont:—

1. *Resolved*, That the able and impartial manner in which our distinguished President has presided over our deliberations demands, and by these presents does receive, our most heartfelt thanks.

2. *Resolved*, That as he returns to his field of labor, he shall carry with him the best wishes of the members of this Association for the continued blessings of life and health, thus being able to dispense the blessings of the profession of which he is so bright an ornament.

Both of which were carried, the question being put by Vice-President HOOKER.

Also by Dr. HOLTON:—

Resolved, That the thanks of this Association are due and are hereby tendered to Dr. FURMAN, for the able manner in which he has discharged the duties of Secretary.

Which, on motion, was carried unanimously.

By Dr. HIBBERD, of Indiana:—

Resolved, That the Committee of Arrangements be and are hereby

requested to solicit the leading railroads of the country to transport members to the next meeting of this Association at reduced fare.

Carried.

At this stage of the proceedings the Section on Surgery submitted a report, which was, on motion, accepted, and the recommendations therein contained adopted.

Dr. TRASK, of New York, in behalf of the Section on Practical Medicine and Obstetrics, presented a further report of the meeting held this afternoon, which, on motion, was disposed of as the preceding.

Dr. BELL, of New York, presented an additional report from the Section on Hygiene, etc., which was accepted, and referred to the Publishing Committee.

On motion of Dr. HIBBERD, of Indiana, the proposed amendment to the plan of organization, offered by him last year, was carried unanimously, and reads as follows:—

Insert after the first paragraph of the 4th Article the following: "The President and Vice-Presidents shall assume the functions of their respective offices at the beginning of the annual meeting next succeeding their election; other officers shall take office immediately upon their election."

Dr. STOCKWELL, of Michigan, presented the following:—

"*Whereas*, Criminal abortion has become an alarmingly common evil, we need some means to educate the community as to its criminality and physical evils; therefore,

"*Resolved*, That our delegates be requested to ask the American Medical Association to offer a premium for the best *short and comprehensive tract* calculated for circulation among females, and designed to enlighten them upon the criminality and physical evils of forced abortion."

The above preamble and resolution were signed by Philo Tillson, President, and S. L. Andrews, Secretary, of the Northeastern District Medical Association of Michigan, as having been adopted by that Association at its annual meeting held on the 19th day of May, 1864, and which its delegate, Dr. STOCKWELL, was instructed to present for the consideration of the American Medical Association.

On motion, the resolution was adopted by this Association, and the following added: Moved, that the subject be referred to the Committee on Prize Essays.

Carried.

Dr. SQUIBB, of New York, offered the following:—

Within the past few months the medical profession of this country has lost the life and service of Dr. FRANKLIN BACHE, of Philadelphia, and it appears hardly just that he should pass from the scene of his productive labor without some respectful notice upon the record of the National Medical Association.

This man, with an honesty of purpose and of practice which proved that he was guided by the spirit of truth in his heart, industriously served this profession throughout a long life, with vigor, energy, ability, and success, and there are few men left living in the profession who have added so much to its practical useful knowledge, or who have so faithfully opposed ignorance and error.

With much of the wisdom of his great ancestor, Benjamin Franklin, he surpassed him in soundness of mind and integrity of action, and lived a life so useful and so nearly blameless that all may envy his reputation and follow his example with advantage to the profession he so long served. He died on the — day of April, 1864, in Philadelphia, while actively engaged in professional labor upon the *U. S. Dispensatory*. Therefore,

Resolved, That Dr. JOSEPH CARSON, of Philadelphia, be appointed to draw up a biographical sketch of his public life and services for the *Transactions* of the Association.

Which was lost, and, on motion, the whole matter was referred to the Committee on American Medical Necrology.

Dr. HIBBERD, of Indiana, introduced the following:—

Resolved, That a committee of three be appointed to collate and revise the Plan of Organization, putting into an orderly code all ordinances now in force, but not adding any new matter, except to harmonize the several parts.

Carried.

The Chair proceeded to appoint the above Committee on Revision, when Dr. SAYRE, of New York, moved that the President be a member and the Chairman thereof. Carried.

The following gentlemen constitute the Committee: Drs. N. S. DAVIS, of Illinois; S. D. WILLARD, of New York; J. F. HIBBERD, of Indiana.

Dr. GRISCOM, of New York, moved the appointment of a committee of three to confer with the Haytian minister on the cultivation of the Cinchona plant, which was carried, and the following committee named: Drs. JOSEPH M. SMITH, E. R. SQUIBB, and JOHN H. GRISCOM, all of New York.

Dr. HOMBERGER, of New York, submitted the following:—

Whereas, The position of specialties and specialists is at the present moment very ill-defined; be it

Resolved, That the American Medical Association go into committee of the whole to define the position of specialists, and the duties of the profession towards specialists, as well as the duties of specialists towards the profession.

Lost.

Whereupon Dr. RAPHAEL, of New York, moved the appointment of a special committee to report upon the above resolution at the next meeting of the Association, and that Dr. HOMBERGER be appointed Chairman of such Committee. Carried.

It was then moved that the Committee be appointed by the Chair, and consist of ten members, which motion as to number was lost. Whereupon it was resolved that five be the number.

The Chair appointed as such Committee: Drs. HOMBERGER and WHITE, of New York; JEWELL, of Pennsylvania; STORER, of Massachusetts; and HOOKER, of Connecticut.

Dr. WHITE requested to be excused. The request, on motion, was granted, and Dr. BRINSMADE, of New York, substituted.

The Section on Hygiene, etc., reported that Dr. THOMPSON'S monograph on "Milk-Sickness" had been examined and approved.

On motion, the report from the Section was adopted.

Dr. MCGUGIN, of Iowa, offered the following:—

Whereas, Medical men are very often summoned and compelled to appear in court, by coroners, to testify in cases in which their testimony is that only upon which the judge and jury rely for the material on which to found their judgment and decisions, yet, although dragged from their homes and their duties, they receive but the fee of those who only testify as to the facts seen and heard in each individual case; all experts, in whatever department of life, receive additional compensation proportionate to the importance of the facts and opinions they are able to evolve, and it is but just to the profession that like considerations and benefits be secured to the member of the medical profession; it is therefore

Resolved, That the State Societies and the profession of each State be requested to petition the several legislatures thereof to pass laws giving to medical witnesses the usual fee for counsel, as in all other cases, and especially when the judgment and decisions of the cases rest upon the force of the medical testimony.

Adopted.

By Dr. NOYES, of New York:—

Whereas, In the appropriation bill now pending in Congress is a clause donating to Dr. W. T. G. Morton, of Boston, the sum of $200,000, as a recognition of his services in introducing sulphuric ether as an anæsthetic agent; and

Whereas, The said Dr. Morton, by suits brought against charitable medical institutions for infringements of an alleged patent covering all anæsthetic agents, not claiming sulphuric ether only, but the state of anæsthesia, however produced, as his invention, has by this act put himself beyond the pale of an honorable profession and of true laborers in the cause of science and humanity; therefore,

Resolved, That the American Medical Association enter their protest against any appropriation to Dr. Morton, on the ground of his unworthy conduct, also because of his unwarrantable assumption of a patentable right in anæsthesia; and further, because private beneficence in Boston, New York, Philadelphia, and other places has already sufficiently rewarded him for any claim which he may justly urge.

Resolved, That a copy of these resolutions, if passed, be forwarded to the Chairman of the Committee on Ways and Means.

Dr. MAURAN, of Rhode Island, moved the adoption of both resolutions, which was carried.

The Association then adjourned, to meet in Boston the first Tuesday in June, 1865.

GUIDO FURMAN, M. D.,
Secretary.

NEW YORK, June 23, 1864.

REPORT

OF

THE COMMITTEE OF PUBLICATION

AND OF

THE TREASURER.

REPORT OF THE COMMITTEE OF PUBLICATION.

THE Committee of Publication respectfully report:—

That, owing to unavoidable circumstances, the minutes of the last meeting, and the various papers referred to them, were not received until late in the month of August, 1863, and that, in consequence, the present volume (No. 14) was not issued until early in 1864.

The edition issued was smaller than usual, from the fact that the amount of funds in the hands of the Treasurer would not justify a larger one. The whole number of copies printed was five hundred, at an aggregate cost of $890 19.

Of this edition, two hundred and fifty seven copies have been distributed to members, to medical journals, and sold, leaving a balance of two hundred and forty-three copies in the possession of the Association.

The items of expenses incurred will be found in the report of the Treasurer.

The following schedule exhibits the number of copies of each volume now possessed by the Association.

Proceedings of first meeting, held at Philadelphia .	37 copies.
Vol. I. Out of print (5 copies held by the Association).	
Vol. II. " " " "	-
Vol. III. " " " "	
Vol. IV. " " " "	
Vol. V.	228 copies.
Vol. VI. Out of print (5 copies held by Association).	
Vol. VII.	35 "
Vol. VIII.	192 "
Vol. IX.	220 "
Vol. X.	133 "
Vol. XI.	152 "
Vol. XII.	238 "
Vol. XIII.	116 "
Vol. XIV.	243 "

The successful prize essayist having preferred, instead of the hundred dollars appropriated, a gold medal of equal value, the Committee procured appropriate dies, and had a medal struck from them.

All of which is respectfully submitted.

FRANCIS G. SMITH, JR., *Ch'n.*

JUNE 6, 1864.

TREASURER'S REPORT.

THE Treasurer has the honor to report:—

That the demand for copies of the Transactions on the part of Permanent Members continues extremely small, so much so, indeed, as to have ceased to be a dependence with the Committee of Publication in their estimate of means for the publication of the annual volume.

At no meeting of this Association has the assessment of delegates produced a sum equal to the expense of printing the *Transactions* for the corresponding year, and the Treasury has met all expenses exceeding the amount of assessment from the cash balance of the preceding fiscal year. Now, however, the expense of printing the volume has increased full 40 per cent., and this, together with a decrease of sales, will render the printing of the *Transactions* impossible, unless the utmost discretion is exercised in referring papers for publication. Let the Association refer only such as are of unquestionable value to the profession, and, even in such instances, counsel the authors to avoid, as much as possible, illustrations by woodcuts and engravings, and the introduction of tables, or what is technically called "rule work."

A volume of *Transactions* as expensive as some that the Association formerly published could not now be supplied at the present rate of assessment.

With every exertion, aided by Drs. H. D. Bulkley, N. Y., Alden March, Albany, J. Nelson Borland, Boston, S. G. Hubbard, New Haven, and H. F. Askew, Wilmington, only some 120 copies of Vol. XIV. have thus far been disposed of.

By resolution the list of volumes on sale will read thus:—

Proceedings of the Meeting of Organization	50
Vols. I., II., III., IV., VI., are out of print.	
Vols. V., VII., VIII., IX., if taken collectively	$5 00
For the set, if singly, a piece	2 00
Vol. X.	2 00
Vol. XI.	2 00
Vol. XII.	2 00
Vol. XIII.	2 00
Vol. XIV.	3 00

The American Medical Association

Dr.

June 1, 1864.

To cash balance from C. B. 1861 and 1862 . .	$504 21
" " received from delegates Chicago, Ill. . .	593 00
" " " " permanent members . .	350 00
	$1,447 21
To balance on hand	$449 02

CASPAR WISTER,
Treasurer.

in account with Caspar Wister, Treasurer.

Cr.

By cash paid discount on draft		$1 75
" " " Express charges		1 25
" " " counterfeit note		5 00
" " " prize essay		100 00
" " " H. M. Barnes, for services as clerk		50 00
" " " T. K. Collins, for printing and binding 500 copies, Vol. XIV., circular, postage, &c., less 5 per cent.		805 71
" " " Blanchard & Lea, for expenses of delivery Vol. XIV.		28 28
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GUIDO FURMAN.

ADDRESS

OF

ALDEN MARCH,

PRESIDENT OF THE ASSOCIATION.

ADDRESS OF ALDEN MARCH,

PRESIDENT OF THE ASSOCIATION.

GENTLEMEN OF THE AMERICAN MEDICAL ASSOCIATION:—

PRECEDENT, and long established usage, have well nigh rendered it of binding authority for the presiding officer to address you on the present occasion: and as we are assembled in this great commercial metropolis to transact business of the greatest importance—no less than that which concerns the life, health, and well-being of the great family of man—let it be our first, as it is our highest and most sacred duty, to lift up our hearts and voices in thankfulness to a kind Providence, from whom we derive our being, to whom we are indebted for our continued existence, and for the privilege vouchsafed to us of gathering together in numbers this day equal to those of similar occasions, even in the palmiest days of this august Association.

May we not then, in a spirit of Christian faith and true philanthropy, invoke the guidance and example of the great Physician, whose mission, while on earth, was to heal the sick, to restore the blind to sight, to unstop the ears of the deaf, and to raise the dead from their graves?

With these high and holy aspirations deeply impressed upon our hearts, shall we not be encouraged to hope that all of our deliberations, while engaged in consulting upon those interests which are best calculated to disseminate comfort and happiness to humanity, may be characterized by the same brotherly love and social ties of professional friendship which have on all former occasions pervaded our ranks, and which have been the chief element by which we have been held together, *emphatically*, as the great organization of medical science—"The American Medical Association?"

I appear before you this morning, gentlemen, in the double

capacity of presenting you with what may be called an inaugural and a valedictory address.

It hardly need be explained how it becomes my duty, and, I may very well say, my distinguished privilege to address you on this interesting occasion.

It was the spontaneous will of my professional brethren when convened at the last anniversary meeting of this Association.

The office of presiding over your deliberations was unsought and unexpected; and unprepared as I was to discharge the duties —delicate and responsible as was the task—nevertheless, to promote and to preserve harmony in our organization, and to comply with the repeatedly expressed wishes of over-partial friends, I have made an effort to fulfil them, according to the extent of my ability. I regret that this distinguished honor had not been conferred upon one[1] who had older and higher claims to it—upon one with whom the idea of a medical convention originated, and to whom we are, in a great degree, indebted for the organization of our present delightful association. I trust the time will yet come when all local and sectional jealousies, and all suspicion of disloyalty shall have been dissipated, that the originator of this grand and truly noble association will be remembered and duly honored. It is meet and proper that a full share of credit should be awarded to the prime mover of any great scientific or benevolent enterprise —any movement that is designed to extend the blessings of the healing art as broad and as free as are the maladies "to which flesh is heir." An appropriate share of honor may also be attributed to those who may have aided in a work so noble, so glorious—and it is exceedingly gratifying to the speaker to know that he has been thus historically and honorably identified with the origin of this great enterprise.[2]

When the first President of this Association[3]—the Nestor of American Medical Science—was inducted into the presidential chair, he remarked, "I can find no language to express the depth of my gratitude—it is the most precious of all the honors I have ever received, as spontaneously conferred by my own brethren."

If such deep gratitude filled and swelled the bosom of the veteran of other high official and professional honors, how much more

[1] Dr. N. S. Davis.

[2] See "History of the Am. Med. Assoc.," by N. S. Davis, M. D., p. 23.

[3] Nathaniel Chapman.

befitting will it be for me to render unfeigned thanks for this mark of confidence and respect!

When we take a glance at the names of my illustrious predecessors in office—of Chapman, of Pennsylvania, Stevens, of New York, Warren, of Massachusetts, Mussey, of Ohio, Moultrie, of South Carolina, Wellford, of Virginia, Knight, of Connecticut, Parsons, of Rhode Island, Pope, of Missouri, Wood, of Pennsylvania, Pitcher, of Michigan, Eve, of Georgia, Lindsley, of the District of Columbia, Miller, of Kentucky, Ives, of Connecticut; and last, though not least, of the *gem* of a *Jewell* of Pennsylvania, I fear that such a constellation of medical lights may be quite too imposing for me to attempt to imitate, or even to make an effort to follow.

There is, however, some consolation to be derived from the fact that all true pictures are made up of lights and shades; and that the latter only aid in developing the excellency and beauty of the former. It is in this respect that the background of the picture may be regarded as performing a subordinate, although an essential part of the representation.

It will be perceived that all sections, at least the cardinal points of what we were once proud to call the United States—the East and the West, the North and the South—have been represented in the Presidential chair of this Association; showing, therefore, that, in former days at least, there was with us no political, no social North or South, East or West; but that we were one *then* and indivisible. And may we not devoutly pray to be one *now* and *ever more*, in our *political, professional,* and *social relations?*

The indications of the times, we think, encourage us to hope for a happy reunion, ere long, as *broad* and as cordial as in any of our former gatherings. Without doubt will be remembered by many who are here to-day, the hearty welcome and spontaneous demonstration in the clapping of hands, when the names of delegates were called from the States of Virginia, Missouri, Tennessee, and Maryland, as we were last year convened in the great Prairie City of the West.

Located, as I am, one hundred and fifty miles north of this great commercial emporium, in what might be called a country village in comparison with the teeming population of the London of America—a city not less distinguished as the patron of the arts and sciences—nevertheless, I can but feel that some historic interest attaches to the seat of government of the Empire State.

Frigid and inhospitable as our *location* might lead one to infer as

to the true character of our natures—suffer us to say that we have warm and sympathetic hearts, which as readily respond and vibrate to the calls of patriotism and benevolence as those of any other portion of this Republic.

It is to our legislators that we are indebted for the incorporation and pecuniary aid of the New York State Medical Society—a society which has numbered, and still numbers among its members some of the most distinguished of our profession—a society in which originated the call for a "National Medical Convention" in 1845, now nearly twenty years since, which was the germ of the great and powerful "American Medical Association."

The aim and object of the Convention was to enlist concerted and harmonious action upon the subject of improving and elevating medical education.

It will be remembered that at the Convention held in this city in May, 1846, a committee of nine was appointed to prepare and present the subject in a suitable form for the action of the Convention.

A member[1] of that Committee submitted a preamble and a set of resolutions, the first of which so simply and beautifully expresses the points aimed at, that no apology will be required for presenting it on this occasion, merely with a view to refresh our memories upon the objects of this Association.

"*Resolved*, That it is expedient for the medical profession of the United States to institute a National Medical Association, for the protection of their interests, for the maintenance of their honor and respectability, for the advancement of their knowledge, and the extension of their usefulness."

At this stand-point it may be interesting and instructive for us to look back upon our past labors, to see how *much*, and how *well* we have succeeded in accomplishing the objects embraced in this brief resolution.

We have, indeed, instituted, or rather established an American Medical Association, which has contributed to protect our interests, and to "maintain our honor and respectability." We have adopted a wholesome code of medical ethics, especially designed to accomplish such an end. And the record of the various papers on the many different subjects of the healing art, which have been prepared and discussed in this Association, will indicate how far our

[1] Dr. Hays, of Philadelphia.

medical *knowledge* has been advanced, and the amelioration of the moral and physical condition of those around us will show how far we have succeeded in "extending our usefulness."

It has been well remarked that "in unity there is strength." This principle has been most emphatically illustrated in the united labors of the medical profession of these United States.

Physiological and pathological subjects have been thoroughly investigated—Medical and Surgical diseases; Chemistry, Pharmacy, and Materia Medica; various specialties; statistics of life and death; and enlightened sanitary measures best calculated to preserve health, have each and all received a due share of professional culture, as the numerous published volumes of our Association will fully attest.

The subject which has most engrossed the attention of the medical profession, especially that of this Association ever since its organization, is the best means of elevating the standard of medical education—a subject well worthy of all the time and talent that have been devoted to it by some of the most able and honorable men of our profession.

That there is pressing need of improvement in the standard of knowledge for the practice of physic and surgery, none will deny; and equally true is it that the great mass of the profession desires that the standard of medical knowledge should be elevated —should be commensurate with the demand of public sentiment.

The thoughts and study of my predecessors in office—of committees on medical education—of the lay members, and of professors of medical colleges, have been faithfully and zealously devoted to the consideration of the best means to be employed for the accomplishment of this grand and all absorbing subject.

I am fully aware that it will be of but little avail for me to make an attempt to perform what abler and more learned men have failed in a great degree to effect.

It has been said that "a continual dropping will wear away a stone." Upon this principle, I shall venture to drop a word or two in relation to a subject that requires "line upon line, precept upon precept, here a little and there a little," that some of the obstacles which have hitherto interposed to obstruct advancement "in elevating the standard of medical education," may be gradually worn away and overcome.

It has been charged that "the medical colleges have not responded as generally or as cordially to the recommendation of the

Association, as was desirable."[1] In short, they have been charged with being inimical to changes—to advancement, to improvement in medical education. To a certain extent this may be true, but that all of our medical colleges and professors are incorrigibly "old fogyish," I would most respectfully deny.

I have been a medical teacher for nearly forty-three years, and the more defects I see in the education of the candidates for professional honor and emolument, the deeper do I feel the necessity of reform and improvement in the rudimental discipline of those who are rushing so fast into the ranks of our profession.

A mere glance at the *Transactions* of this Association, especially at the reports of committees on medical education, must satisfy any one of the necessity of the efforts that have been made to accomplish an object of so much importance to the dignity and honor of our profession, and to the welfare of the public.

One of our late Presidents,[2] in his address, remarks, "The grand object of our Association, the education of the great body of the medical profession to greater respectability and more extended usefulness, is still far from being adequately accomplished. While much has been done—enough to encourage us to more earnest effort—a great deal remains to be done. In this direction, the great want is a more thorough preliminary and professional education. This is admitted on all hands; but to find and apply the remedy is a task at once difficult and ungracious."

For a statement of what has been proposed, and, in some degree, accomplished by the labors of the members of this Association, I beg to refer to what the author[3] calls, "A condensed statement of what has been attempted for the advancement of medical education, by the medical conventions of 1846 and 1847, and by the American Medical Association since its organization in 1847, published in the *Transactions* of the Medical Society of the State of New York, in 1860."

The author says: "The object I have in view is to bring the labor thus bestowed into a small compass, that at a bird's-eye view, as it were, it may be seen what has been done." I hardly need say that this object has been ably and faithfully carried out. In this "condensed statement" there will be found a great variety of propositions to elevate the standard of medical education. These

[1] Dr. C. C. Cox.
[2] Dr. Harvey Lindsley.
[3] Dr. Thomas W. Blatchford.

relate to preliminary education—to the lengthening of the term of medical studies—to the lengthening of the lecture terms—to an increase of the number of terms—to a board of examiners separate, distinct, and independent of the professors—to a mixed board—to a more thorough and rigid examination for the degree of Doctor of Medicine—to a second degree—to the age to which the student shall attain before commencing the study of medicine, and to many other minor points, too numerous here to be mentioned.

It is believed that to aim high for intellectual and honorable attainments, and for position in society, will equally apply to professional acquirements; and yet is there not danger of grasping at too much? Theory is one thing and practice is another. Let us strive to accomplish that which is practical. One[1] demands, as an *indispensable prerequisite* to enrolment as a student of medicine, "that the party shall be at least seventeen years of age, of good moral character and habits, and that he shall have received a good English, classical, and mathematical education, be able to read and translate the Latin language, and have an elementary knowledge of the Greek, so far as to be able to trace the derivations from it in the English language."

Another[2] would require "a thorough preliminary education in Latin, mathematics, and physics, as essential prerequisites to the admission of a student into the office of a medical preceptor, or as a matriculant of a respectable medical college."

One of my predecessors in office,[3] in his address before this Association, boldly asserted, "That the education of physicians has not kept pace with that of theologians, or even lawyers, and our profession has so far lost caste as scarcely to deserve to be ranked among the learned."

Now whether this be an exaggeration of the truth or not, is not for me to decide. But inasmuch as the author has been for many years a practical teacher, a man of extended observation, and withal, as we believe, speaking from the honest convictions of his own experience, we are bound to regard it as truthful.

The same author, in speaking of the defects of a preliminary education of those who have entered, and are yearly entering, the ranks of our profession, remarks, "I am constrained to say, that even at this late period, the profession abounds in students and

[1] Dr. D. M. Reese.
[2] Dr. C. C. Cox.
[3] Dr. Henry Miller

practitioners who are radically defective in spelling, grammar, etymology, descriptive geography, and arithmetic."

After making this humiliating and lamentable confession, he adds, "For this sad decadence of medical education, either private preceptors or the professors in our medical colleges, or both, must be judged responsible, for they alone are its guardians."

One of my colleagues[1] of the Albany Medical College, in a "Report of the Committee on Medical Education of the Medical Society of the State of New York," published Feb. 1859, very simply and comprehensively arranges the subject of *reform* under the three following heads: "FIRST. The necessity of a more thorough preliminary education before entering upon the studies of the profession.

"SECOND. A longer and more thorough (and by that we do not mean merely a more extensive) course at the medical schools.

"THIRD. A more thorough and severe ordeal for the final examination."

How these points may be established and carried out, seemed to puzzle my friend about as much as it has those who have previously discussed the same subject.

If we cannot agree upon a high amount of preliminary instruction, embracing Latin, Greek, and the higher mathematics, let us insist that the candidates for the study of medicine shall not be justly chargeable with being "radically defective in spelling, grammar, and etymology." Now it seems to us but reasonable and strictly proper, that the preceptor—the physician, and *not* the professor, into whose office the pupil first enters—should be held responsible for this reasonable demand—a demand *altogether practicable*. As to this defect in early education I cannot fully agree with my honorable friend,[2] who made the last report to this Association on this subject, who says, "The professors of colleges, who should sustain the relation of faithful custodians to the temple of science, admitting nothing unworthy within its sacred portals, are chiefly deserving of censure."

Important as it is that the student should be suitably prepared before entering upon his medical studies, nevertheless it is not all that is required to make an intelligent and safe physician. In proof of this we would cite some illustrations within our own experience, of young men to whom had been given all the advan-

[1] Prof. Howard Townsend. [2] Dr. C. C. Cox.

tages of an excellent primary education, yet who were entirely deficient in their examination for the degree of doctor of medicine.

We know, for example, of some cases, where the candidate for the degree described *corrosive sublimate* as a preparation of *copper*, and that *three* or *four grains* should be given as the dose.

Hydrocyanic acid, to be given in doses of *ten grains;* that *aconite* was a preparation of *zinc* and must be given in doses of *eight* or *ten* grains; and without going into detail of the examination, the whole of which proved extreme ignorance in one of the departments of the profession where one ought to be the strongest before presuming to take charge of a patient; since here he would become the agent, as it were, of Death, instead of being instrumental in restoring health, which is the ultimate object of his profession.

We cheerfully allow, that to accomplish the second and third points—that of "a longer and more thorough course at the medical schools, and a more thorough and severe ordeal for the final examination," the professors of medical colleges should be held strictly accountable; as we assume that it is through the medical colleges that almost all candidates for the practice of physic and surgery find access to our ranks.

Bearing upon this subject, however, I beg leave to state one remarkable fact—and that is, that the Boards of Censors of the Medical Society of the State of New York, who have the legal right to examine and to give diplomas to candidates for the practice of physic and surgery, in ten years previous to 1862, licensed only *four* candidates, and that in two years, 1862 and 1863, the same boards examined and licensed *nineteen* candidates.

Now the State law only requires that the candidate for a State license shall present a certificate of three years of medical study with some licensed physician, and to sustain such an examination as the censors may see fit to impose.

It is claimed that the exigencies of the war have called for a great increase of medical men. Be it so—but can that be any excuse for thrusting incompetent men into that important service? I do not say that these licentiates had not attended two, or even one full course of lectures at any of our medical colleges—that they never used a knife on the dead body for the study of practical anatomy—that they never saw the inside of a hospital, nor that all or any one of them had been rejected as candidates for graduation at some respectable medical college. But that there was some reason why these nineteen licentiates did not enter the "tem-

ple of medical science, through the sacred portals of some medical college," there can be but little doubt. If more instruction can be imparted in a given time at our medical colleges, in attendance on lectures and recitations, in hospital practice and college cliniques, than in the office of a private physician, let us demand more of this kind of instruction. Let us attempt to make such an advance as can be accomplished.

The gentleman[1] to whom we have just referred, in his report says: "There should be not less than three courses of lectures of six months each in duration."

My colleague, in his report remarks: "Instead of courses of lectures continuing only four or five months, they should, as in literary and scientific colleges generally, be continued for ten months of the year, or perhaps we may better express it by saying that they should be continued throughout the year, excepting some eight for ten weeks or vacation."

If three six months' courses of lectures—or the continuance of lectures "throughout the year" with the exception of a few weeks of vacation—were deemed advantageous to students, I think it would be asking or demanding too much at once, at least in the present state of medical feeling—an impracticability.

Our observation has been, after many years of experience (and I believe it will coincide with that of other teachers), that medical students always learn *faster*, and retain what they learn *longer*, in the first half of the time of a four months' course of lectures. If they become weary, careless, and inattentive, if not mischievous and unruly, before the close of a four months' course, might they not become restless and unmanageable before the close of a six months' course? I am, therefore, an advocate for demanding for graduation *three full four months courses*. Let not these courses be curtailed at either end a single week; let no partial course or extra attention to any one department be received in lieu of full courses. If all the colleges will agree on this requirement, and faithfully adhere to it, we can see no reason why it may not be accomplished.

Upon the third and last point I agree with my colleague: "That the final examination for the degree should be one of severity, thoroughness, and impartiality."

We do not intend to impugn the motives of professors in voting

[1] Dr. C. C. Cox.

to pass incompetent men, and to confer upon them the highest medical honor. It has been said of one candidate that "he has been in practice several years, and can continue to do so, in our State, without even a license—on the whole, he will be a safe practitioner;" a second "has spent all his substance to get along thus far—is too poor to live longer without earning something in his profession; he has no money, nor friends to whom he can go for aid;" and still the excuse for another stupid fellow is, "that he will never learn any more by longer study, or by attending any more lectures; in short, the longer he is kept back, the less he will know." These and similar apologies should have no influence on the judgment and decision of the high-minded and conscientious professor. Such unworthy specimens are sure to bring dishonor upon the institution from which they graduate, and disgrace upon the whole profession.

Let the standard of requirements have a broad margin; and by no sympathy or false philosophy permit any imperfectly prepared candidate to pass a definite and fixed boundary line.

If the farmer, in gathering and preparing his potatoes for the market, should insert among the marketable ones, only two quarts in a bushel of the refuse (the small potatoes), and thus spoil the sale of the whole, we should all say that it was a piece of bad management, poor philosophy, and worse economy.

There must be a limit somewhere to the extent of our lenity; and the crushing effect, if it may be thus called, had better fall on one or two, or even half a dozen, rather than that a large community should suffer, and that the whole medical profession should be disgraced. It is the "small potato doctors"—those who do not succeed in the regular practice—that are most apt to apostatize—to depart from the regular faith, and become "small pill," as well as "small potato doctors."

These suggestions I have thought proper to offer, with the sincere desire that some good may grow out of them. I would farther suggest that the annual meetings of the "Teachers' Convention" be renewed; and that all the medical colleges in the United States be earnestly and cordially invited to enter with zeal and decided activity upon the adoption of such measures as may be best calculated to effect the object aimed at—the elevation of the standard of medical education.

If the first effort of holding a "Teachers' Convention" in 1859 was so far successful as to have thirteen States and twenty-one

colleges represented, we see no valid reason why, by perseverance, all the States and medical colleges may not, in time, be induced to engage in the furtherance of this desirable reform.

Gentlemen, I have already occupied more time than I had assigned to myself, and fear I have wearied your patience.

And now, during this brief period of my services, let me crave the same kind indulgence and support which it was my pleasure to enjoy on a former occasion, until I shall have the delightful privilege of handing over to my successor the insignia of an office of so much honor and responsibility.

REPORT OF SECTION

ON

Practical Medicine and Obstetrics.

REPORT OF SECTION

ON

PRACTICAL MEDICINE AND OBSTETRICS.

JUNE 8th, 1864.

THE Section on Practical Medicine and Obstetrics was called to order at 3.30 P. M., and was organized by the election of Dr. B. FORDYCE BARKER, of New York, as Chairman, and Dr. H. R. STORER, of Boston, as Secretary; several hundred members being present during the course of the meeting.

Dr. GARDNER, of New York, who had been appointed to this duty at a former meeting, read a report upon the *Use and Abuse of Pessaries*, the drift of his argument being that these were almost always and necessarily injurious to the patient. Remarks upon the paper, acknowledging its importance, but protesting against too sweeping a condemnation of a mode of treatment that, with certain precautions, is found in practice to be at times absolutely indispensable, were made by Drs. PEASLEE and ALLEN, of New York, TOWER, of District of Columbia, MENDENHALL, of Ohio, and by the Secretary of the Section. Dr. GARDNER'S paper was then referred to the Committee of Publication.

Dr. HITCHCOCK, of Michigan, asked leave to defer the reading of his report upon *Death from the Introduction of Air into the Uterine Sinuses* until to-morrow. This was granted.

Dr. LEVICK, of Philadelphia, presented a most interesting paper upon *Spotted Fever*, as essentially the result of a blood poison rather than of inflammation of the cerebro-spinal meninges. A spirited discussion followed the reading of the paper, participated in by Drs. BRINSMADE, PRATT, FISHER, KNEELAND, CRAFTS, LYMAN, GARDNER, and CRITTENDEN, of New York, BALLOU, of Rhode Island, WORTHINGTON HOOKER, of Connecticut, and MCARTHUR, of Illinois, all of these gentlemen uniting in praise of Dr. LEVICK'S communication. It was referred to the Committee of Publication.

The Secretary of the Section introduced a paper upon *The Rela-*

tions of Female Patients to Hospitals for the Insane; the necessity on their account of a Board of Consulting Physicians to every Hospital, claiming on behalf of all practical gynæcologists that the insanity of women was most generally of a purely reflex character, and that in treatment it should be approached from an obstetric stand-point. The paper was warmly commended by Drs. MAURAN, of Rhode Island, SMITH, of New York, and other gentlemen of practical experience in the premises, and was referred to the Committee of Publication. It was then *voted*, on motion of Dr. GARDNER, of New York, that the resolutions appended to the paper be heartily endorsed by the Section on Obstetrics, and sent to the Association in general session, for its formal approval.

The resolutions referred to are as follows:—

Resolved, That in the opinion of the American Medical Association, it is expedient that there should be attached to every public hospital for the insane, one or more Consulting Physicians, whose appointment should be honorary, and who may be consulted at the discretion of the superintendent; such measure being alike for the interest of the hospital, its medical officers, and its patients.

Resolved, That a copy of the above resolution be transmitted to the Board of Trustees of each of our public hospitals for the insane; and also to the Secretary of the Association of American Superintendents, with the request that it may be endorsed by that body, and the action proposed be urged upon the respective boards with which its members are officially connected.

At a late hour, the meeting of the Section was adjourned until to-morrow at 3 P. M.

HORATIO R. STORER, Secretary.

Third day, P. M. Session.

Dr. BARKER called the Section to order. In absence of the Secretary, Dr. TRASK was, on motion, appointed Secretary *pro tem.*

A paper presented by Dr. H. O. HITCHCOCK, of Michigan, was read by Dr. H. B. SANDS, on Death by the Introduction of Air into the Uterine Sinuses.

On motion, it was voted that this paper be transmitted to the Association to be referred to the Committee of Publication.

A paper was presented by Dr. FISHER, of Illinois.

On motion, it was voted to adjourn until 8 P. M. to hear this and other papers.

J. D. TRASK, Secretary *pro tem.*

DEATH FROM AIR IN THE CIRCULATION,

INTRODUCED

THROUGH THE UTERINE SINUSES:

BEING

A COLLATION AND REVIEW OF THE FACTS AND MEDICAL OPINIONS DEVELOPED AT THE CORONER'S INQUEST OVER THE BODY OF HARRIET E. LA FARGUE;

AND AT

THE EXAMINATION AND[1] FIRST AND SECOND TRIALS OF WILLIAM WEYBURN FOR MANSLAUGHTER IN THE CIRCUIT COURT, KALAMAZOO COUNTY, MICHIGAN, INCLUDING THE MEMORANDA OF THE TWO POST-MORTEM EXAMINATIONS.

BY

HOMER O. HITCHCOCK, M.D.

[1] At the November, 1863, and January, 1864, terms, Hon. Benj. F. Graves, presiding, the juries both disagreed.

DEATH FROM AIR IN THE CIRCULATION INTRODUCED THROUGH THE UTERINE SINUSES.

It is but a few years since the possibility of the accidental entrance of air or gases into the circulation through the uterine sinuses was brought before the profession. M. Legallois, observing some singular phenomena in a female rabbit dying after delivery with an inverted uterus, was led to further observations and experiments upon animals; and inferred the possibility of the accident in the human female.

There have not been wanting numerous instances of death under diverse circumstances, attributed to this cause, by various physicians of eminence and authority. But the profession, in this country at least, seem to have been very slow in accepting this explanation of these cases. Indeed, so late as 1860, Prof. John C. Dalton, in a lecture on the Physiology of the Circulation, published in the June number of the *American Medical Monthly*, questions if there has been a single authentic case of the kind, except the case published by Dr. Swinburne, of Albany, in the *Philadelphia Med. and Surg. Reporter* for April, 1859.

It has appeared to me, therefore, that a single case in which this accident should be shown beyond a question to have happened, is now a great desideratum, and will not only be valuable in itself, but doubly so, as shedding light upon numerous facts that have, until now, appeared to many to be shadowy, and as establishing, in their illustration, a pathological fact of great interest and importance.

No apology is offered, therefore, for the length of this paper.

The husband of the deceased testified to the following facts:—

On the fifteenth day of March, 1863, he went to Dr. Weyburn's office, and engaged him to procure an abortion, that afternoon, upon his wife, Mrs. La Fargue, then supposed to be pregnant four or five months, for the sum of twenty dollars.

While talking the matter over, La F. asked if the operation was painful, to which the Doctor replied, "No." La F. remarked that he had understood "the operation was performed by means of a hollow instrument, with a piston or stem within it which performed the work; Weyburn answered that it was so.

About 3 o'clock P.M. of the same day, the Doctor came to the house, and after some talk about other matters, said to Mrs. La F. "if she would step into the bedroom, he would try and relieve her."

They went together into the bedroom, and the door was shut.

In about five minutes after, the husband heard Mrs. La F. "screech or scream" once or twice, and almost immediately the Doctor called to him to bring in some water, "as his wife had fainted." La Fargue carried in the water and saw his wife lying on the bed, "blue or purplish in the face, in a slight tremor or motion of her arms and muscles of her face and neck; eyes closed, and she insensible."

After applying restoratives for a few minutes in vain, Weyburn gave it as his opinion "that she was dead."

The Doctor asked, "What shall we do?" To the answering question of the husband, "What *can* we do?" he replied that "he would leave some medicine and go away, and in fifteen or twenty minutes after the husband should run to the neighbors, appear excited, and say that "his wife was in a fit." The Doctor said, "Do not allow a post-mortem examination, as there would probably marks be found." He further said "he had used the instrument, and it did not seem to hurt her any until just as he was about to withdraw it, when he blew in it, and she immediately threw up her hands, struck at him, screamed out and fainted. La Fargue saw an instrument lying partly concealed by the bedding, which he thus described: A round metallic instrument, perhaps $\frac{3}{16}$ inch in diameter, slightly curved, and 12 or 14 inches in length, with what seemed to him a kind of curved handle. He did not see it plainly, and could not tell whether it was a wire or tube, but thought it was a wire." Weyburn took the instrument, and putting it into what seemed to La F. to be a "leather-braided sheath like the covering of a whip-stock," put it into his over-coat pocket, and soon left.

The proposed farce of calling in the neighbors for the "fit" was enacted. Even a physician, Dr. Lee, was called in, who was misled by the well-told story.

But a guilty conscience gave the husband no peace, and he revealed the whole the same evening.

The appearance of the body when Dr. Lee and the neighbors came in, was as follows: "The clothes were turned up towards her knees—no appearance of injuries about her person—and not a stain of blood upon her clothing or the bedding. Extremities were very pale, 'white as marble'—face discolored, purplish—neck and shoulders very livid."

From the husband's testimony it appeared that Mrs. La Fargue at that time was nursing an infant six months old. She was in good health, doing her own work. On Friday before her death she washed, on Saturday ironed, and on that very day she was seen to sweep off the front steps of the house.

She had taken no medicine for two or three days previous. She was a woman of pretty uniformly good health, subject to no disease other than hysteria.

This testimony of the husband was supported by the testimony of several of the neighbors who had known her intimately; and Dr. Mottram, who had been her family physician, and had attended her at her previous confinement, testified to her having been "a woman of very healthy development, and of an unusually steady nerve and self-possession."

He had "attended her for acute metro-peritonitis during her previous pregnancy, at about the fourth month."

He then "examined her per vaginam, finding the os uteri flabby, and believed that the condition had not been produced by natural causes." This examination "caused no signs of fainting or spasms."

Dr. Sill also examined her during this attack, and he testified that "she showed no signs of fainting or of spasms."

She carried the child with which she was then pregnant to full term, and at her delivery showed no signs of either fainting or spasms.

On the part of the defence, it was shown by a sister of the deceased that Mrs. La Fargue had had "several attacks of spasms." The witness, however, described them as any one would describe a fit of hysteria. Indeed, she said of one of them, "her sister seemed hysterical."

It was shown, also, that within one or two weeks Mrs. La F. had taken several articles of medicine, some of which were taken to bring on abortion.

At a post-mortem examination of the body of Mrs. La Fargue, held on Monday the 16th of March, the following memoranda were made, dictated by Dr. Wm. Mottram, written by Dr. Edward E. Lee, and signed by both those gentlemen.

These memoranda were made a part of the testimony of Dr. Lee before the coroner, and thus sworn to.

"Appearance of the body twenty-one hours after death: Greatly exsanguinated; gas causing froth at mouth; rigid; pale upon upper surface, discolored upon posterior surface of body; full flesh; abdomen tense, tympanitic; rigor mortis well marked; uterus fills abdominal cavity as high up as the umbilicus, presenting a congested appearance externally, as of inflammation; peritoneal covering slightly engorged; utero-peritoneal covering considerably involved. Inner coat of uterus gives evidence of great inflammation, producing softening of lining membrane; muscular coat firm; *placenta softened and broken down;* fœtal membranes entire; internal (fœtal) surface of placenta in good condition. Female child about four months."

Signed, WILLIAM MOTTRAM, M. D.
EDWARD E. LEE, M. D.

Dr. Lee testified before the coroner, "I think the instrumental interference was the direct cause of death."

Dr. Mottram being away from home did not testify before the coroner. But on the second trial he testified that "at that time (the first post-mortem examination) I formed a theory as to the cause of this death which facts, subsequently ascertained, did not support." "This theory was, that there must have been a large amount of uterine hemorrhage, the evidences of which had been privately disposed of." This theory was based upon "the condition of the uterus and placenta, and the extreme paleness of the extremities of the body."

At the examination of the accused, Dr. Lee testified concerning the placenta, "softened and apparently *easy to break down.*" From this and the subsequent post-mortem examination he testified, "I saw no traces of disease sufficient to cause death. The body had the appearance of having been in a healthy condition."

Of the first post-mortem examination Dr. Mottram testified, "We did not go into an examination of all the organs in the abdominal cavity. Section of the womb was made over the attachment of the placenta. The placenta was attached to the fundus of

the uterus over a surface of full seven inches in diameter, and, as first seen through the section, presented a pale and softened appearance. The placenta and ovum were emptied out through the section of the uterus by taking hold of the edges of the section, and turning the whole uterus and contents, upside down. The placenta was easily separated from the womb, as if by the weight of the ovum, as it was emptied out through the opening, and yet *not quite entire*. There were small portions left attached to the womb, being torn out from the substance of the placenta. The placenta was so soft as to be easily broken up. There were two or three small clots of blood on the under side of the placenta."

Question by People.—"If any portion of the separation of the placenta had taken place before the turning out, would the appearance have been the same as if separated by the turning out?"

Answer.—"Yes, if the separation had taken place after death; but if before death, it would have been different—there would have been hemorrhage."

At the second trial Dr. Mottram testified, "I did not make a very minute examination of the placenta."

On cross-examination at this trial, he testified "there were no traces of any separation of the placenta from the inner wall of the uterus."

Mr. A. C. Balch, an intelligent and interested looker-on at the first post-mortem examination, testified, that "as Dr. Mottram cut through the peritoneal lining of the abdomen, which had been carefully dissected from the super-lying structures, he cut from below upwards, and as the peritoneum was stretched tightly over the uterus, he cut entirely through the wall of the uterus, which fact was mentioned at the time by the doctor as an accident by too hard a stroke of the knife.

"As the knife cut into the uterus there was a perceptible sound of the escape of air or gas."

Dr. Mottram, on being thus reminded, remembered that "he did cut into the structures of the uterus," but "did not remember that the knife went entirely through the walls of the organ."

After the coroner's inquest had been completed and the body interred, the theory of "uterine hemorrhage," which was strongly and repeatedly urged upon the prosecuting attorney, and the theory of "death by simple syncope" proposed by Dr. Lee, did not seem entirely consistent with the facts then revealed. It was

suggested that there was a remarkable similarity in the symptoms that were said to have preceded this death, to those that usually precede death from accidental entrance of air into the circulation during surgical operations. Moreover, all the post-mortem appearances that had then been brought to light were entirely consistent with, and indeed seemed to point to some kind of sudden asphyxia.

Besides, there appeared to be the unconscious confession of the guilty man at the very moment of the fatal catastrophe, that he had done the *very act* that caused immediate death, viz., "It did not seem to hurt her until just as I was about to withdraw it, when I *blew in it*, and immediately she threw up her hands, struck at me, screamed out, and fainted."

Accordingly, upon the order of the prosecuting attorney, the body was disinterred and a second post-mortem examination was held, four days after the first examination, and five days after the death of Mrs. La F.

There were present, at this examination, Drs. Mottram and Lee, Wm. B. Southard, J. Sill (Homœopathist), and H. O. Hitchcock.

The following are the memoranda, as assented to by all and written by Dr. Lee.

March 20th, 1863.

"Appearance of the body five days after death: Face and shoulders bright purple hue mottled with white; same true of posterior surface of body, but darker. Evidences of fibro-plastic exudation on under surface of transverse colon, and on upper small intestines —glued together slightly; spleen much congested, twice and a half its normal size—engorged with blood. Stomach greatly congested, upper and under side—most posteriorly. A small opening on upper surface made at previous examination—not very much blood in ascending vena cava below the diaphragm. Liver normal, slightly congested. Left lung a good deal congested and engorged; a ligature placed about all the vessels of its root and its bronchus —all divided outside of the ligature. Immediately on division air or gas rushed out, part of which entered into the pericardium, raising it up from the heart. The ligature was found to have slipped off. None of the gentlemen present could be sure from which of the vessels this air or gas came. But immediately after, when pressure was made upon the heart by the hand, bubbles of air were seen to come out of the pulmonary artery.

"Right lung also greatly engorged—both healthy in every other

respect. Pericardium healthy; heart of normal size, nearly empty. Valves all healthy and sufficient. Sixteen ounces of blood drained out of vessels in thoracic cavity. Fully as much blood present as is usual in the system after death.

"Kidneys healthy, but deeply congested. Brain externally healthy —of usual size; perhaps less congested than usual; otherwise healthy. Corpus callosum healthy; cavities empty of blood, with usual amount of serum. Plexus not congested as usual. Substance of brain perfectly healthy throughout—unusually free from blood."

By an inadvertence these memoranda were not signed, but, as will be seen, they were fully endorsed in the main facts by each one of the gentlemen mentioned, at the examination of the accused.

Dr. Lee testified, "The heart was in a healthy condition. I think there was a little blood in the right side of the heart. The lungs were very much congested, but healthy. Spleen, stomach, liver, and kidneys much congested. Brain healthy, but considerably exsanguinated, giving it a pale appearance. We found the usual amount of blood in the system."

Dr. Mottram also testified to the "congestion and otherwise healthy condition of the lungs, spleen, stomach, liver, and kidneys. Heart healthy, but contained a small clot in the right side, but no blood in the left. Brain healthy, but free of blood."

My own testimony confirmed the above, and I added, concerning the sound of air escaping when the root of the left lung was cut: "I believe the air or gas came from the heart through the left pulmonary artery."

My reasons for this belief were:—

1st. The air could hardly be believed to have come from the divided bronchus; for if it had been contained in the *left lung* and been forced out by the pressure of the hand in raising the lung, it would naturally have been forced out of the natural passages, and that, too, before the cut was made. It seems impossible that it should have come from the right lung, for there was no more pressure upon that lung than there had been for some minutes—simply the atmospheric pressure. Besides, both lungs were so filled with blood that there could have been but little air in either of them.

2d. The air or gas did enter an opening *into* the pericardium accidentally made at the moment of dividing the root of the lung. This opening was made just where the pericardium leaves the pulmonary artery, within an eighth of an inch of the divided edge of the artery, and nearly an inch from the bronchus. Air coming

forcibly out of the artery would naturally enter the opening, while air coming out of the bronchus would be carried away from the opening.

3d. I immediately pressed with my hand upon the heart, the divided artery being brought into view, when numerous bubbles of air or gas were seen to come from the heart through the blood in the pulmonary artery.

Dr. Wm. B. Southard testified:—

"The lungs were very much engorged—healthy aside from their engorgement. The usual amount of blood in the system. I heard the sound of air as the pulmonary vessels were divided. I suppose it came from the heart. I suppose so from its current."

The placenta, uterus, and fœtus, were put into my hands, and I carried them to my office.

I found two or three small clots of blood still attached to the maternal side of the placenta. These I measured—the largest being a little more than three-fourths of an inch in diameter, the second about one-half inch in diameter—both irregular in shape and about one line in thickness.

The fœtus measured nine and a half inches in length.

On the examination of the accused, the following were the opinions of the several physicians as to the manner and immediate cause of the death of Mrs. La Fargue.

Dr. E. E. Lee. "Syncope. I consider it possible that the shock of the operation or the introduction of the instrument, might have produced a fainting fit from which the patient might not have recovered. I can see no other probable cause of death. An injury that would have produced the shock might not have left any visible marks."

Dr. Hitchcock. "I account for her death by the forced entrance of air into the circulation through the uterine sinuses, producing a peculiar asphyxia."

Dr. Mottram. "I should attribute Mrs. La Fargue's death to clonic spasm, closing up the heart's action instantly, and suspending it sufficiently long to produce death."

Dr. Southard. "I should say she died of asphyxia or apnœa. There are only two ways which now occur to me in which death could have been thus produced, viz., by the introduction of air into the circulation and spasmodic action of the heart and lungs and muscles involved in respiration. The spasm may have been pro-

duced by a shock of the nervous system. That shock might have been given by the operation."

Dr. Wm. Johnson. "I should ascribe the death of Mrs. La Fargue to apnœa, resulting from a shock to the nervous system. I think the shock was due to the inflamed state of the organs as shown on the first post-mortem examination, conjoined to strong mental apprehension of danger. Judging from the evidence, I should say, an examination by the speculum or the finger introduced into the vagina might have produced such a result. The inflamed state of the organs was not sufficient to have produced death."

Upon the second trial, some of these opinions were a little modified, and others were added.

Dr. Mottram's was modified to "syncope succeeding tonic spasm of the heart." He adds, "The exciting cause of the death I have come to feel, to say, I cannot tell."

Question.—"What tendency would the mental excitement of the preparation for the operation have to produce this spasm, if any?"

Answer.—"The tendency would be to syncope—depression of the vital energies. Mental and nervous excitement could become so great as to cause this spasm and so produce this death.

"The post-mortem examinations did not disclose any disease of the vital organs that would account for this death.

"We found no recent wounds or injuries about that female that would have been likely to produce spasms."

Dr. Southard. "Syncope was the mode of Mrs. La Fargue's death. Tonic spasm fixing the organs and muscles of respiration, and arresting the circulation in the radicles of the pulmonary veins; thereby shutting off the arterial circulation to the brain."

Dr. E. H. Van Deusen. "Assuming the statements of the husband to be true, from the facts developed at the two post-mortem examinations, and the entire absence of any other cause of death, I could account for this death in no other way than by the introduction of air into the circulation through the uterine sinuses. Air might have been introduced without hemorrhage to any extent."

Dr. Sill (Homœopathist). "I suppose her death was dependent upon a general spasm. I should expect to find such a state of *extreme congestion* of the lungs if death occurred from a general spasm. My impression would be there was a condition of the uterus and its surrounding organs that strongly predisposed her to

such a spasm; so that any action or mental excitement which would not ordinarily affect her might cause the spasm."

Cross-examined.—"I discover no act on the part of the respondent which would necessarily produce death in ordinary cases."

Dr. Browning. "Syncope from spasm of muscles of chest and heart."

Defence.—Dr. Mottram. "The condition, as I understand it, necessary to force air into the circulation, requires positively the rupture of the placenta or its separation from the walls of the uterus."

Question.—"If placenta was entire and its attachments entire, could air be forced into the uterine sinuses?"

Answer. "Under those circumstances, air, in my opinion could not be forced into the circulation. In the condition I found that uterus, a condition of integrity, with no traces of any separation of the placenta from the inner wall of the uterus, I should say air could not have been forced into the uterine sinuses with the force employed, as appears by the testimony."

Dr. Lyon—(note, Dr. Lyon was not present at either of the post-mortem examinations). "I think the air or gas, the escape of which was heard just at the division of the root of the left lung, came *out* of the pericardium and was gas formed within it by decomposition."

When asked to describe the appearance of a person who had died from entrance of air into the circulation, he described with great exactness the appearance of this woman, as follows: "Extreme paleness of the extremities, and nearly the whole of the body. Abdominal organs might or might not be unusually congested. The lungs would be extremely congested. The left side of the heart would be found empty of blood. The right side would be found stuffed full of bloody froth. The brain would probably be found with less than its usual quantity of blood:

"In this case the condition of the heart did not answer such a cause.

"I do not believe that air can be forced into the circulation without lacerating the placenta or detaching it from the walls of the uterus, and if it had been detached or broken, I believe hemorrhage would have followed."

These views were also supported by Drs. Sill and Bagley (Homœopathists) and Drs. Johnson, Browning, Brown, and Southard.

From the foregoing facts, it would seem almost superfluous to

enter into an argument to disprove the so untenable theories, or to establish the theory of the entrance of air, as a cause of death. But so changed have been some of the pathological facts, and so persistently have the other theories been urged, and so emphatically has it been said that this theory could not be sustained by the facts in the case: and from the fact too that the possibility of its truth has been denied by some eminent members of our profession, and its great improbability asserted by others: I have determined, as far as I am able, to remove *all* doubt in this case, and if possible to establish its truth, that it may shed light upon a subject of the greatest pathological interest and importance.

A. First, then, let us consider in detail all the other theories that have been proposed to account for this death, in relation to their consistency with all the *real* post-mortem facts.

1st. "Excessive uterine hemorrhage."—This theory was based upon the very unusual bloodlessness of the extremities, the placenta and uterus, and the condition of those organs. Its chief use in this place is to re-establish some post-mortem facts that have been denied.

This theory was carried from the first post-mortem examination by DR. MOTTRAM, notwithstanding there was not a single blood-stain on the clothing of the deceased, or the bedding, seen by any one. With such *prima facie* improbability of the truth of this theory, it would seem that there must have existed and been undeniably recognized, facts, not only consistent with it, but actually suggesting, and compelling its reception.

What did the entertainment of this theory imply?

(*a.*) An absence of blood in the system. This seemed to be apparent; but at the second examination was disproved.

(*b.*) It emphatically implied and demanded, for its intelligent reception, that the mind so receiving it, and believing it, should have either *known* that the conditions of the uterus and placenta rendered it possible, or at least should have believed that such conditions *might have existed.*

Those conditions were, of course, injury of the inner wall of the uterus, injury of the placenta, or injury of the connection of the two.

The evidence seems to show that there was no injury of the inner surface of the uterus. But the memorandum made at the time of the examination concerning the placenta was "softened and broken down."

Here we have the recognized positive existence of the facts necessary to the theory. And if we had not, certainly the manner in which the placenta and ovum were emptied out of the divided uterus would at least render possible their existence, though they had not been observed. This *possibility*, yes, *probability*, or certainty, of such an ante-mortem separation of the placenta must have been the basis of the theory.

Now this theory was abandoned after the second post-mortem examination.

An abandonment of the theory, however, would not change the positive existence of the facts necessary to the theory. It was remarkable, then, that when the theory was abandoned the facts should have, by some means, been changed.

The memoranda of the facts made at the first post-mortem examination were not admitted in evidence after the coroner's inquest. But we have, in place of the simple statement, "placenta softened and broken down," the following, viz: "No traces of any separation of the placenta from the inner wall of the uterus."

Dr. Mottram. "I did not make a very minute examination of the placenta."

"In the condition I found that uterus and placenta, a condition of integrity, I should say air could not have been forced into the uterine sinuses."

The very conditions necessary to an intelligent belief that there had been uterine hemorrhage are here positively asserted *not to have existed.*

2d. "Simple syncope from shock."—The few symptoms we have that preceded the death of this woman are not indeed symptoms usually attendant upon simple syncope. "A scream," "throwing up of the hands," "striking with the hands," "blueness of the face," and "rigidity of the muscles," are certainly not the recorded symptoms of fainting fits.

Nor are the post-mortem appearances any more consonant with this theory.

Is it possible that "emptiness of all the cavities of the heart" and "extreme congestion of the lungs" can be evidences of paralysis of the heart? But is not paralysis of the heart a necessary pathological condition in syncope?

3d. "Spasm of the muscles of respiration." This theory appears to have been suggested by the fact, developed at the second post-

mortem examination, that the obstruction to the circulation was at the pulmonary capillaries.

Suppose this theory to have been true, and the muscles of respiration by some unknown excitant had instantly been thrown into permanent and strong contraction, fixing the chest immovably as in some cases of poisoning by strychnia. What then would have been the manner of death, and what the pathological appearances of the heart and lungs? (In this case we suppose the heart not involved in the spasm). Most certainly the manner of death would have been that of asphyxia. The lungs would have been extremely congested, but the right cavities of the heart would have been filled with venous blood crowding in from both venæ cavæ.

4th. "Spasm of the heart."—If this theory had been true, the obstruction to the circulation would have been *at the heart.* The lungs should have been as devoid of blood as other parts, or, at least, should not have been "extremely congested." For at any given moment when the circulation is healthy there is in the pulmonary structures, *in transitu,* at least as much blood as is contained in the right ventricle at once, the contraction of the two sides of the heart being synchronous. When an organ is extremely congested, does it not contain many times its normal amount of blood? Is it not plain, then, that a spasm of the heart instantly shutting, and holding shut all its cavities, could not "extremely congest" the lungs?

Besides, the post-mortem appearances indicated that the obstruction in the circulation was *at* the pulmonary capillaries; and that at the heart there was a condition of things very unusual. In ordinary asphyxia the circulation is obstructed at the pulmonary capillaries, but the right heart and venæ cavæ are crowded with blood.

Moreover, at the instant of the spasm, the pulmonary veins would be full of arterial blood, on its way from the lungs to the left heart; this would be increased by blood passing through the capillaries after the spasm had occurred. This arterial blood should have been found either in the pulmonary vein or in the left auricle. Both were empty.

B. Let us, secondly, consider for a moment the reasonableness of the three last theories, in respect to the proximate or exciting cause of this death.

Certainly, in forming a theory of the manner of death, some regard should have been paid to the conditions, circumstances, and

acts preceding and attending the death, for in them, if known, was to be found an adequate cause for the death. The following appear to be those conditions, circumstances, and acts. A young woman in her usual health, or at least attending to her household duties up to the hour of her death—of unusual nerve and self-possession, subject only to hysteria and that seldom—not subject nor liable to fainting or spasms, when examined per vaginam in a previous metro-peritonitis, or at her confinement—with deliberation and forethought in the act she was about to enter on. An abortionist went to her house to procure an abortion—went into the bedroom with her for that purpose. Said he used an instrument which did not hurt her until just as he was about to withdraw it, when he blew in it, and immediately the woman screamed out, threw up her hands, struck at him, became insensible, and was soon dead.

By the gentlemen holding the theories now in question no weight at all could have been given to the act of blowing through an instrument, although this fact was admitted by the defence. It is true they endeavored to show by the respondent himself that he was in the act of using a simple speculum to ascertain if this woman was *really* pregnant; and that he blew in it to clear the mucus out of the os tincæ; a pretence so ridiculous and absurd to any one at all accustomed to the use of the speculum, as at once to prove its untruth.

Were there any conditions in this case that predisposed to spasms? Had she had puerperal convulsions, the theory of spasms might have been reasonable; but she had not.

Was there anything in the attendant circumstances that would predispose a healthy woman of "unusual nerve and self-possession," bent on the accomplishment of her object, to spasm? and such a spasm? Can a reasonable and unprejudiced mind answer this question otherwise than "no"?

Was there any act aside from the "blowing" that could have produced such a spasm in such a woman?

Two of the gentlemen testify (after the coroner's inquest, indeed) that "there were no marks of mechanical injury," and that "they should have observed them if there had been any." But this testimony, it will be remembered, was given by men who emptied the placenta and ovum out of the uterus, just as one would skin a squirrel, by cutting the skin open upon the back and stripping it

off at each end—by men who *recorded* upon the spot that the "PLACENTA WAS BROKEN DOWN."

Dr. Johnson, indeed, says: "The spasm might have been produced by the introduction of a speculum or even the finger into the vagina." And all the other gentlemen say it might have been produced "by the operation," which, if they are to be believed, "left no marks."

Is not such an hypothesis utterly preposterous? Has there been, "within the memory of man," a case analogous?

No such case was adduced or referred to upon the trial.

C. We will now turn our attention to the theory of "death by forced entrance of air into the circulation through the uterine sinuses."

Let us try this theory also by the acts performed, the ante-mortem symptoms, the post-mortem appearances, and the objections urged against it.

1st. By the acts performed.—The abortionist, through an instrument,[1] then within the uterus, or at least within the vagina, "blew," and the woman "screamed," "threw up her hands," "struck at him," "fainted," was found in a minute or two, by the husband, "blue in the face," "insensible," and with the arms and muscles about the face and neck in a "trembling motion."

This act, surely, will be acknowledged to be an adequate cause of death if the air entered the sinuses. Has any other act been brought to light that would be an adequate cause of the death under the existing conditions and circumstances?

2d. Moreover, see how exactly the symptoms correspond to the symptoms in those cases where death is undoubtedly due to the accidental entrance of air during surgical operations, in the "espace dangereuse."

[I am indebted for much that immediately follows, to an admirable *résumé* of the facts and literature upon the subject of "air in the veins as a cause of death," by James S. Greene, M. D., published in the *American Journal of the Medical Sciences*, Jan. 1864].

From the symptoms reported in sixty-seven cases, Dr. Green gives us the following as characteristic symptoms: "The patient

[1] By reference to the husband's testimony it will be seen that he described very well a flexible catheter with its attendant wire as the instrument seen by him upon the bed.

suddenly turns pale, utters a cry, such as, 'I am faint' or 'I am dying;' becomes insensible; or there may be observed anxiety of countenance, labored respiration, lividity of lips, dilated pupils and convulsions. Again, lividity of the face and stertorous breathing may be the prominent symptoms. These symptoms may gradually give way and the patient recover, or they may end in death.

"Syncope is often the predominant feature, and the patient may die without a struggle.

"In twenty-five cases only the symptoms of syncope were remarked; in six convulsions without syncope; while in seven syncope was succeeded by convulsive spasms. In the remaining cases, either no general symptoms occurred, or death was described as immediate, and no particulars given. A sudden cry or exclamation was heard in seventeen cases."

As to the suddenness with which death occurs, Dr. Green says: "Of the 34 fatal cases, 24 died immediately or within a few minutes; 6 others in from three hours to twenty-eight days—and in 4 the time of death is not given."

Thus it appears that the symptoms recorded in this case are almost precisely the "characteristic symptoms" observed in the cases where death unquestionably results from air in the circulation.

3d. The principal post-mortem facts that seem to me to be of consequence in this case are, "extreme congestion of the lungs, entire absence of blood in the left, and almost an entire absence in the right cavities of the heart, and the escape of air from the uterus at the instant of an incision through its walls; the marble whiteness of the extremities and the unusual paleness of the brain and its membranes."

Are these consistent with death from air in the circulation or not?

Mr. Erichsen[1] says: "Death occurs in consequence of the air and blood being beaten up together in the right cavities of the heart into a spumous froth which cannot be propelled through the pulmonary capillaries."

Thus it appears that the dam to the circulation in these cases is at the pulmonary capillaries, and there must of course, if the action of the heart continues, be congestion of the lungs. If the heart's action continues two or three minutes, the congestion must become

[1] Science and Art of Surgery, p. 141.

extreme, even if but a small quantity of blood were propelled from the heart at each beat.

Did, then, extreme congestion of the lungs exist, in this case, at the time of the death? Could their condition, at the time of the second post-mortem examination, be attributed to post-mortem change? This, indeed, was *hinted* by some of the medical witnesses.

Let us see. They were so congested at the time of the second post-mortem examination. There was also found at the same time "as much blood as is usual in the system." But at the first post-mortem examination, so extremely bloodless were the extremities and uterus as to lead to the theory of "excessive hemorrhage." Besides, Dr. Mottram testified at the second trial that the "abdominal organs," at the first examination, "were not congested more than usual." Where, then, at that time, was the blood that we afterwards found in this body? It could have been only in the thoracic or occipital cavities.

But at the second examination there was an unusual absence of blood from the cavity of the head.

It seems then certain, that, at the time of the first examination, there must have been hidden within the thorax a large amount of blood, just where it was afterwards found. It appears then to be demonstrated that there was at the time of this woman's death "extreme congestion of the lungs," and that the obstruction in the circulation took place at the pulmonary capillaries, and that, in these respects, this case fully justifies the theory.

The entire absence of blood from the left cavities of the heart is just what might be expected, if there was a sudden obstruction to the circulation at the capillaries of the lungs, and brief continuance of the heart's action. All the blood that had passed through the pulmonary capillaries and into the pulmonary vein, would, by successive beats, have been thrown out into the arteries, and thus the left heart and corresponding pulmonary vein would have been empty.

But air occupying much of the room in the right cavities, we should not expect to find much blood in them; neither should we expect to find them entirely without it.

Should we of necessity have, after five days, these cavities "stuffed full of bloody froth?"

This question may be better answered by an appeal to the recorded facts than by any theorizing upon the matter.

I refer again to the *résumé* of Dr. Green.

Of the 67 cases of accidental entrance of air into the veins during surgical operations there referred to, in 9 the accident was followed by no bad consequences. These, however, were classed with the others only because, in the course of operations, the peculiar sound, believed to be characteristic of the entrance of air into a divided vein was heard.

24 cases recovered after more or less severity of suffering. 24 cases died within a few minutes; 1 in seven hours; 1 in three hours; 1 in "some hours"; 1 in seven days; 1 in 28 days; of the remaining 4 cases the time of death is not given.

Of the fatal cases 18 were examined after death.

In 1 case neither air nor blood was found in any of the cavities of the heart; but numerous bubbles of air were found in all the vessels of the brain, in the inferior vena cava, iliac veins, aorta and crural arteries. Dissection in this case took place 18 hours after death. Death followed the accident in a "few minutes."

In 1 case, where death was delayed until the 7th day, the cavities of the heart were also found empty, and no air was discovered in the veins, while the aorta and iliac arteries contained air mixed with blood. In 15 cases air was found in the right cavities of the heart. In 6 cases air was found in the arterial system. In 6 cases the air in the heart is stated to have been "mixed with blood." In 2 it is stated that it was not so mixed. And in 7 cases nothing is said about it.

Now what are the recorded facts in regard to this matter? In *no* case were the right cavities of the heart spoken of as "stuffed full of bloody froth." In only 6 cases is the air said to have been "mixed with blood" in the right cavities of the heart. The same language is used in one case where the air was found only in certain arteries. In two cases it is positively asserted not to have been mixed with blood. Distension of the heart's cavities with bloody froth seems never to have been noticed in a post-mortem examination.

The recorded facts, then, have, at least, shown, that the right cavities of the heart "stuffed full of frothy blood" is not a *necessary* post-mortem fact in a case of death by air in the veins.

Did air escape from the uterus when the walls were divided?

This fact we have upon the testimony, not of a physician, but of a very intelligent and interested observer.

Dr. Mottram thought it the escape of gas, "sulphuretted hydro-

gen" from the cavity of the peritoneum. Was that probable? Within the peritoneum were evidences of the first stages of inflammation. There was no gangrene, no pus, but slightly inflamed healthy organs of a woman dying in full strength. Could it be possible that there would be sulphuretted hydrogen generated in the cavity of the peritoneum, twenty hours after death, the body being in an atmosphere not much above the freezing point? I confess that to my mind this supposition is not half so reasonable as that a physician, not looking for an escape of air from the uterus divided by accident, should, unthinkingly, and so unreasonably, have called it "gases from decomposition." No note, however, was made of such a fact in the memoranda.

I believe that, in a former part of this article, it has been made probable that air or gas did escape from the heart during its removal. The question here arises, was not that gas from decomposition *formed* within the heart? In reply I have only to remark, that the body during all this interval, from death to the second post-mortem examination, was at a temperature not much if any above the freezing point. There was no evidence of formation of gas within the cavities of the pleuræ—no odor of marked decomposition about the body. The supposition that that was air that escaped is more natural than that there had been the formation of so much gas within the heart, and at the same time none in the pleural cavities.

Most of the objections to this theory have already been answered, but there remains one, that, perhaps, requires a more extended and specific answer, viz., "the absence of hemorrhage."

Nearly all of the medical witnesses testified that the conditions demanded for the entrance of air into the uterine sinuses would be attended with profuse and sudden hemorrhage.

Let us see if this objection be tenable.

It is true that we often have hemorrhage in the early months of pregnancy, on account of partial separation of the placenta. It is equally true that, in the majority of these cases, if treated promptly, the hemorrhage is controlled by the horizontal position, and perhaps a little opium. But the partial separation must exist for a time, at least, after the horizontal position is taken and the opium administered.

Is it not plain, then, that partial separation of the placenta may exist without hemorrhage?

Now, if, when a female is in the supine position, a very small

separation be made at the very upper edge of the placenta, should there *of necessity* be instantaneous hemorrhage, and that, too, considerable in quantity?

Moreover, suppose the separation be made by the pressure of atmospheric air between the walls of the uterus and the membranes, would not the air, by rushing into the aperture, check any considerable flow of blood? Again, if air did thus enter the circulation, there must be an instantaneous derangement of the circulation, which of itself must prevent any large hemorrhage. But in this case, we had evidences of a slight flow of blood out of its usual channels, in the two or three small clots that were found on the maternal surface of the placenta. Are not, indeed, those clots a perfect demonstration, that that placenta was partially separated from the uterine wall? And are they not precisely what we should expect under such circumstances?

I trust it has been satisfactorily shown, in the foregoing pages, that the THEORY OF THE DEATH OF MRS. LA FARGUE FROM FORCED ENTRANCE OF AIR INTO THE CIRCULATION THROUGH THE UTERINE SINUSES, is not only consistent with the facts, both ante-mortem and post-mortem, but is the only theory which harmonizes these facts, and the only one based upon an adequate cause, and also the only one against which no tenable objection has been urged.

I cheerfully submit it for the verdict of the profession.

KALAMAZOO, MICH., May 1st, 1864.

A

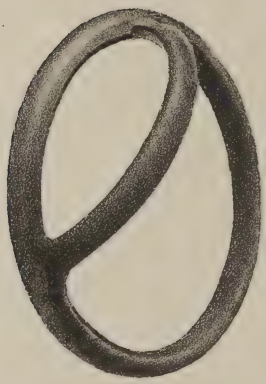
MODIFIED RING PESSARY

FOR THE

TREATMENT AND CURE OF ANTEFLEXION AND ANTEVERSION OF THE UTERUS.

BY

HOMER O. HITCHCOCK, M. D.



A MODIFIED RING PESSARY FOR THE TREATMENT AND CURE OF ANTEFLEXION AND ANTEVERSION OF THE UTERUS.

PERHAPS there is no displacement of the uterus that has so baffled the efforts of physicians to remove it as anteflexion.

Pessary after pessary has been invented and presented to the profession with high claims for their efficacy. But still this displacement is the dread of almost every physician, and the constant, painful perplexity of many a patient.

Perhaps of no disease is the Scripture record more true, "She had suffered many things of many physicians, and yet was nothing better."

In the winter of 1863, I was consulted by a young unmarried lady from a distant part of the State, on account of a disease from which she had suffered for nearly four years. She had received the advice of many a physician of high and low degree—had worn the ring pessary—the globe pessary—the horseshoe pessary—the double S pessary and the intra-uterine stem pessary—and the common sponge.

The last physician she had consulted was a professor in a large and popular medical school, who had pronounced her disease to be inflammation, with great thickening, of the posterior wall of the bladder.

Upon careful examination with the uterine sound, I discovered that the instrument, in order to enter the womb beyond the cervix, had to be curved to an arc of a circle of about one inch radius, and the handle had to be carried back nearly to the os coccygis, and, that what had been taken as thickening of the bladder, could be entirely removed by keeping the instrument well crowded up and bringing the handle forward.

The patient gave the history of frequent inflammation of the uterus and ovaries, and there appeared to be quite strong adhesions binding the womb in its assumed place. She had had too frequent menstruation—profuse and intolerably painful—frequent and painful micturition.

The diagnosis, anteflexion of the uterus, seemed unquestionable. But I was sure that some other means of treatment must be resorted to than had already been made use of.

After some experimenting, I contrived a very simple modification of the ring pessary of Professor Hodge.

This modification consists in springing an arch across the anterior third of the ring of such a height and at such an angle as the case in hand demands.

This arch can be put upon a common ring by any one who has a very moderate degree of mechanical skill. All that is necessary, is a ring of suitable size and a sufficient arc of another ring welded to it by means of an alcohol lamp.

The instrument is very readily put *in situ* with the arch going up just posteriorly to the arch of the pubis. The fundus of the uterus rides upon this arch and must be upheld by it.

There is no danger of ulceration and there is no danger of injury to the lining membrane of the uterus. Pressure is at once removed from the bladder if the instrument is properly adapted to the case.

In the case alluded to above, the patient went to her home after a few weeks entirely relieved from all bad symptoms. I heard from her one year after treatment. She was then teaching in a large female seminary--had ceased altogether to have painful or too frequent menstruation. Micturition was perfectly normal. She called herself well, and as a proof of it she sent word to me that she had that day skated three miles.

Since January, 1863, I have treated nearly a dozen cases of anteflexion and anteversion of the uterus with this pessary, and in no one of them have I been disappointed in its efficiency.

I take pleasure, therefore, in presenting a photograph of the instrument to this Association. It is simple in its construction, is adapted to the end to be accomplished, and can be always at the command of any one.

Kalamazoo, Mich., May 15th, 1864.

ON THE USE OF PESSARIES.

BY

AUGUSTUS K. GARDNER, M.D., Etc.,

NEW YORK.

ON THE USE OF PESSARIES.

Among the whole catalogue of the diseases peculiar to women there are none supposed to be so prevalent as falling and displacements generally of the womb, and there are none of so little real importance as these. In fact it may almost be said that no such diseases exist, this condition being usually, in the vast majority of cases, only a symptom of some other affection. Still, in the same manner as we hear physicians, of more or less erudition, talking of patients sick with dropsy, and giving burial-certificates for death by dropsy, we hear the same class of physicians having patients with falling of the womb, and inventing instruments and more or less barbarous machines of torture for the cure of falling of the womb and other displacements.

Now I will not positively assert that there is no such thing as simple falling of the womb, but it is no more frequent, I believe, than idiopathic dropsy; so rare, indeed, that I cannot remember having seen it of late years, and I doubt if the cases which I formerly supposed to be such, would stand an examination in the light of the present knowledge upon the subject.

If, then, what has been called prolapsus uteri—to consider this alone—is but a symptom of some other disease, it is manifestly absurd to direct curative measures to the symptom, although palliative measures might be admissible, and therefore it follows, that the treatment of falling of the womb, prolapsus uteri, procidentia uteri, *chute de l'uterus* by pessaries, unless used as palliative applications, is necessarily absurd, illogical in idea, necessarily unproductive of good; and, as a *non sequitur*, is productive of injury, and savors too much of charlatanry and a desire to transfer the contents of the pockets of the patient into those of the physician.

To commence this subject afresh. Falling of the womb, in its various forms and varieties, which it is not necessary in this paper to enumerate, is the displacement of the womb downwards, to a greater or less extent. It is a symptom of some other disturbance,

upon which it depends. It has formerly been considered to be caused not unfrequently by a relaxation and consequent elongation of the ligaments which normally act as stays and braces to it. In the great majority of cases, however, where many of the symptoms of falling of the womb are present, this organ has not changed its position sufficiently to make any great traction upon the ligaments, and although the womb has settled somewhat, the ligaments are not materially lengthened, even if their direction is changed and their angle with the uterus is made more oblique. This evinces that the uterus is held in position by some other, at least additional means, and this we find to be the vagina, in its turn supported by the perineum. A destruction or relaxation of one or both of these portions removes the base upon which the uterus rests.

It may also be mentioned, *en passant*, that the symptoms of weight and dragging in the groins are sometimes found where there is no observable displacement of the organ, and again these symptoms are entirely wanting where the uterus has descended so as to be actually observable when the patient is standing erect, evidently showing that the symptoms are erroneously ascribed to the existence of displacement.

We are therefore compelled to look for some other cause both for the displacement which exists and for the painful symptoms that accompany it; and this we find in the condition of the uterus itself. Bennet first alluded to the fact of the hypertrophic condition of the neck of the uterus as the cause, erroneously ascribing to this condition the displacement in every instance, overlooking the cases of general hypertrophy of the entire organ which are often the cause. We find it also not unfrequently in the early months of pregnancy. In fact it almost always exists normally, until the uterus is so large that it can rest upon the pubis and the ischia, but owing to the fact of the absence of any disease there is no disturbance caused thereby, and this fact is worthy of notice, as it shows that the symptom of prolapsus is unimportant, and that it is the ulceration, inflammation, or the attending and causative disease which is the source of irritation and the creator of the local and general disturbance.

It follows, therefore, without any argument to the regular professional man, that the treatment shall be directed to the cause, and if owing to the increased weight of the entire organ, or of the neck only, the aim should be to restore it to its normal condition, and according to the cause, in individual cases, should the treatment be directed. If there be thickening from chronic inflammation, intra

or extra-uterine, this should be cured and removed; if from the weight of adventitious growths, they should be removed; if from an elephantiatic condition of the cervix, it should be removed (see case of amputation of the cervix uteri by myself, weighing over four ounces and a quarter, in the Bulletin of the New York Academy of Medicine for 1862). Amputation of the entire cervix is of rare necessity, but the removal of considerable portions, as the anterior or the posterior lip, although rarely done, should be a quite common operation. I am convinced by my own knowledge that it is far better to cut off a hypertrophied portion than to attempt to melt it down by strong caustics; not only is time saved, but suffering.

In many cases the tissue has become exceedingly dense, cartilaginous almost in its character, and creaking under the knife, and would only be eaten away by the acid-nitrate of mercury or caustic potash, with great sacrifice of time and suffering. We should not hesitate to cut off such portions with the knife or scissors, with little fear of any ill result. Sometimes gores may be cut out and the cut edges united by silver suture; after all amputations, the edges of mucous membrane should be drawn together and united by the silver suture.

If there should be only a general enlargement of the uterus, as is frequently seen after a sudden arrest of the menstrual flow, causing congestion, increase in weight, and a temporary falling, the appropriate treatment is evidently to be directed to removing the cause and not to the results.

It follows therefore that as a necessary consequence, the treatment of falling of the womb by the use of pessaries of any kind (except "medicated pessaries," which are falsely thus styled, and which being intended not to act mechanically but to melt and thus locally to apply medicaments, should be classed with ointments and lotions) is theoretically improper, and cannot be relied upon to effect a cure.

But may they not be employed as adjuvants, not to cure the grand cause, but while this is attended to by appropriate means, may not pessaries, skilfully constructed and judiciously applied, be resorted to, to relieve the distress of certain symptoms? Let us allow, merely for the sake of meeting the question properly, that where there is a strain upon the ligaments, accompanied by dragging sensations in the back and groins, with irritation of either bladder or rectum, or both, from the pressure of the decumbent organ, that relief may be obtained by the use of anything which shall hold up this organ, whether the temporary use of the finger,

or the more permanent application of a pessary. Are we justified in using these applications as palliatives and adjuvants?

If any one is in acute pain from any cause, we are justified in temporarily relieving it, by opium or chloroform, provided his condition is not seriously aggravated by the use of the opiate or anæsthetic. But, if the opiate produces convulsions, and the chloroform is followed by persistent faintings and long-continued cephalalgia, we may properly first count the cost of the proposed relief.

What then is the injury derivable from pessaries? If any, is it the usual result, or exceptional?

We will not for a moment allow that they are anything more than palliative, not even by accident curative agents. Falling of the womb is often extremely temporary. Any woman subject to ill turns, lassitude, and general debility, will tell you that not unfrequently upon these occasions she is sensible of a falling of the womb, and this is unquestionably caused by a simple want of tone in the vagina. This organ loses its tonic contractility somewhat analogously to the changes incident to the scrotum of the male, which is tense or relaxed, as the general system is vigorous or enervated. Surely, in such temporary inertia of the vagina, the physician, who finding a debilitated patient with a temporary prolapsus uteri, and who should say that this displacement was the *fons et origo* of all the parts, and who, instead of a proper system of tonics, &c., should treat the symptom by a pessary, intended either as a curative or a palliative, would greatly err. When we note the irritation, both local and nervous, excited by a simple mucous polypus, a condyloma, a little fibrous body projecting into the vagina, we cannot but be prepared to find like irritation and greatly intensified, from the presence of any hard body, inserted within the vagina and of necessity pressing upon some portion of its parietes. And we do find it so universally. Some women, indeed, have so little nervous sensibility that they receive trifling irritation therefrom, but there is in all more or less local abrasion, irritation, or ulceration. One case is peculiarly before my mind, where a lady, formerly under my care in a neighboring town, being unwell from the invasion of a chronic disease of the liver, her attending physician noticed this temporary relaxation of the vagina with its attendant slight prolapsus, and inserted a pessary, which remained some week or so, and he then for some reason removed it, and, as he stated at a subsequent coroner's inquest, that he

examined her carefully with the speculum, and that there was no disease of the organs observable; yet at the post-mortem examination, made shortly after, there was extensive ulceration of the vagina in the position which this pessary occupied. I think it indisputable that a pessary allowed to remain for a very short period will invariably produce irritation, and if continued longer, will produce almost as certainly, ulceration. I have removed many pessaries that have produced ulceration; one in particular, hollow and of silver gilt, was completely honeycombed by corrosion, its interior filled with exuviæ of the most horrible offensiveness, the vagina ulcerated through into the bladder, producing a vesico-vaginal fistula, and into the rectum, producing a recto-vaginal fistula; the vagina in some portion obliterated by adhesive inflammation and numerous fistulæ made through the labia and around the mons veneris for the exit of the various discharges.

But we will suppose that inflammation and ulceration may occur in a less formidable degree (and the case just quoted is allowedly an unusual result of the use of a pessary for too long a period and without proper care), and we will, for the sake of argument, allow that it is often of little importance, as it may be cured easily after the removal of the pessary when its desired end has been attained. What is then the result?

The more lax the vagina the larger will necessarily be the pessary, and the instrument in any case will necessarily impinge somewhat upon the hard tissues. In aggravated forms, with great uterine hypertrophy, whether of the body or the neck, no pessary, unless fastened externally, will remain within the vagina, but will be forced out.

In any case where the pessary remains for any period, the pressure of the cervix upon the pessary is invariably followed by more or less irritation, inflammation or ulceration, often to such an extent as to entirely neutralize the good desired from keeping the uterus *in situ*.

There is always more or less irritation, inflammation, and ulceration of the vagina pressed upon by the pessary, accompanied by more or less of an exhausting leucorrhœa productive of both physical and nervous debility.

After wearing through a period of irritation, the vagina in some instances, and under favorable auspices, becomes callous, and the pessary may remain innocuous, although the cases are far more numerous where the other extreme is attained, where the instru-

ment is unbearable, and where the integrity both of the bladder and rectum is materially compromised.

But, if borne, what is the result? If there is no irritation produced by the instrument, it in the first place is quite evident that no pessary was necessary for so tonic a condition of things, and secondly, when it is removed there is left a *hole* made by the pessary around which the vagina has firmly contracted, and into which, as soon as the pessary is removed, the then unsupported uterus must inevitably fall; and thus, admitting that the relief derived from the instrument has been temporarily obtained and without other injury, the local condition of the patient is now worse than it was originally. The horseshoe pessary makes two very marked holes, hardened from the deposit of fibrin around (and these often ulcerated and discharging pus, while the vagina around in its irritated condition secretes an immense leucorrhœal discharge) where the ends of the instrument press.

Thus it appears to me that vaginal pessaries, having for their aim either the cure or the temporary relief of symptoms attending prolapsus uteri, are not only useless but actually injurious, and that we should seek to cure by removing the causes, by general tonic treatment, by raising up the superincumbent intestines, and thus in some degree relieving the downward pressure, and by such other methods, some of which have been alluded to, as may be found necessary.

There are, however, a class of cases of an entirely different nature, where the uterus is not prolapsed, and indeed where not unfrequently the os and a large part of the cervix has not changed its position. These cases, called ante, retro and lateral flexions and versions, are acute and chronic, and for their relief an instrument has been devised, which has improperly been called a stem pessary, inasmuch as it is an instrument of an entirely different principle and mode of action from the ordinary pessary. Were our works written, and our nomenclature in the Latin tongue, the instrument would properly be styled, not pessary, but *pessimus;* for it is the *worst* instrument of all, and yet, although so often injurious, and to a very serious degree, it is, in my opinion, an instrument in very occasional cases of justifiable employ and of actual use, yet never without very considerable accompanying danger. So rare, indeed, are the cases where its services are demanded that I have not in six years seen one case calling for it. Still, I allow its occa-

sional utility (especially where absorption of a stricture or uterine stimulation is desired, when the galvanic self-retaining stem is often of service). It is properly a uterine *splint*. Its purpose is to forcibly hold the uterus in a certain position, while certain lesions are healing. But it is only in acute cases where any benefit can be derived from it, and these are very exceptional in their number and character. A woman has had a fall which has dislocated the uterus. It is generally "verted" either anteriorly, posteriorly, or laterally, or it is partially flexed toward any direction. If this was immediately seen by a competent physician, by the aid of manipulation, often assisted by the uterine sound, the organ could speedily be restored to its normal position. But for some reason it is not, and after some days or weeks' delay, the sufferer comes under the auspices of one who understands the case, or submits to the examination requisite, and then for the first time an attempt is made to restore the organ to its proper situation. The uterus is easily replaced, but immediately upon the withdrawal of the sound, returns to the position to which it has been accustomed during the few previous weeks, on account of the relations it has there made. The introduction of the stem pessary and its presence there for a longer or shorter period will suffice to overcome these new and transitory predilections, and upon its removal finally, the cure is found to be effected and the abnormal tendency is overcome.

But there are other cases of a chronic and less propitious character; where the symptoms of disease are of long standing, and where the displacement is of considerable duration. In some of these cases the original trouble has been from a dislocation of the organ originally, such as we have just described, which has become aggravated by neglect; the uterus has been doubled upon itself and there has been absorption of the tissue at the angle of flexion, the destruction of the tissue being the direct consequence of the flexion and the pressure.

In others the flexure is the result of disease in the tissue itself, a fatty degeneration which destroys its vitality, vigor, and power (and this is noted in "Scanzoni's Diseases of Females," R. M. De Witt, N. Y.). The consequence is a giving way of the wall at some point and subsequent absorption of the parts pressed upon, and the case as seen in the latter stage differs but little from that previously described, but one is the effect and the other the cause.

In these cases whatever we may know of cure, we certainly do know something of arrests. After the absorption has taken place,

we cannot repair the evils effected; nor can we, other than by tonic treatment, do ought to arrest the fatty degeneration and its accompanying displacement. But we can restore the uterus to its normal position when displaced by any accident, and if it will not remain, the stem-pessary will effectually retain it there, although always with no little danger, often with very little good. I have now a lady under my care, twelve years married and childless. Last fall she put herself under my charge, and I found a retroversion, of how long standing I cannot say, probably of years. I replaced the uterus with the sound several times, and it returned again, but at longer intervals. She finally became pregnant, and has since borne a living child at full time.

The objection to the use of the stem-pessary is the irritation it excites. Its use is the choice between two evils. It sometimes produces intra-uterine metritis, and that is sometimes followed by metritis and general peritonitis; this is more often the case where the patients have not been previously accustomed to the use of the sound. The portion upon which the vaginal extremity of the cervix rests is abraded, and ulcerated; leucorrhœa abounds. These must be expected, and borne for the greater permanent good hoped for, in exchange for this temporary condition.

Before the stem is permanently left within the uterus, a sound should be passed into this organ every day for a week or more, and allowed to remain for a gradually increasing period. The ulcerations, invariably to a greater or less extent caused by the presence of this irritating instrument (evidenced by the secretion of pus-globules in greater or less numbers), are readily cured, and when weighed in comparison with the very serious disturbances which are the result of this displacement, are comparatively unimportant, provided that the desired relief is thereby obtained.

It should be especially remembered that the only stem-pessary which I would on any condition ever allow to be used, is that which is fastened externally, and has no *point d'appui* upon the internal soft parts. When the stem is attached to any form of the ordinary pessaries there is, in addition to the pessary irritation of the uterus, the difficulty that they are less stable and do not retain the uterus in the desired position, and, what is of more serious importance, they produce great and unnecessary disturbance, as already spoken of respecting pessaries proper, in the vaginal tissues.

But the stem-pessary in any form is rarely required. It is only to be thought of after the failure to restore the organ by the re-

peated use of the sound to its normal position, and generally in acute cases. If the uterus fails to come up to its proper position by the gentle movement of the sound, the pessary, by continued pressure, will not bring it to its place, although it may produce inflammation and ulceration. If the organ is brought up and speedily relapses to its position, either there is absorption of the tissue on the one side or a contraction of the tissue, or the organ be bound down by the adhesion from contiguity without inflammation, or product of adhesive inflammation, viz., strong bands attached to the parietes of the pelvis or some of the adjoining organs. I have seen these bands running from the fundus uteri to the ovaries, the pubis, the sacrum, and the rim of the pelvis, sometimes to the rectum, and no force, with a sound or otherwise, could sever them which would not be as likely to rupture the tissue of the organ itself. All that can be effectually done in these cases is to recognize the fact of the incurable condition of things, and endeavor to render the ills and disturbances arising therefrom as little unpleasant as possible.

It is not a fair argument against a valuable instrument that it is often improperly used, but it certainly is admissible in regard to an instrument considered to be more than useless, even injurious in every case, to show that in the hands of even the most skilful men mistakes are made, and this irritating pessary employed when no possible use could be obtained, either temporary or permanent, from it. Thus, I saw a patient in Brooklyn in consultation some two years since, under the care of one of the most eminent gynecologists in the most medical city of this continent, who had worn a horseshoe pessary for a long period, not having walked for several months, and had been upon her back for many weeks for a retroversion of the uterus. This was discovered to be caused by a fibrous body an inch in length projecting posteriorly at right angles with the cervix, and starting near its junction with the body. The pessary but aggravated the difficulty. The tumor was felt only by a rectal examination, and on that account it was probable that it was overlooked. Less marked instances of a similar nature might be given were it deemed necessary.

The slight value actually derived from the use of the pessary in any form is deducible from their number. Every gynecologist claims that great benefit is to be derived from the use of this mechanical appliance, but each states that it is only from his own

peculiar instrument that the benefit is to be obtained; every other pessary is valueless or injurious. Thus we actually have the whole profession condemning every instrument save the one which the self-esteem of the individual blindly indorses. (Since the paper has been in press I have been requested by several of the most eminent gynecologists of the land not to insert the representations of pessaries invented by them, as they were utterly useless.) Need we attempt to furnish a better argument of the general worthlessness of pessaries?

Appended to this paper we give the drawings of 125 different forms. They have been made for centuries and in every form. I quote here a description of those in use over a hundred years ago. It will be seen that, whether simple or complicated, the same objections are made to them.[1] The native ingenuity of this country is as

[1] Dr. Daniel Turner (Art of Surgery, London, 5th edition, 1736, Vol. II. p. 395 to 424) gives a full description of the pessaries, called pessus, of his and previous days. He says: "Some of the old Writers recommend the *Pessus* to be introduced into the Cavity of the Womb itself; thus *Quentzius*, in his Epistle to *Ambrose Parey*, speaks of a Woman he knew that carried one of them in her Womb for eight or ten Years, as also another, in like manner without hindrance of Conception. *Rousset* mentions a third who used the same *Pessary* in the inside of her *Uterus* for forty Years; unless at the Time of her Labor, when it came forth of itself; and after her Cleansing, it was put up again."—*Dr. Partu Cæzar*, Sect. 6, Cap. 5, 6, xxx.

Again, a poor girl "used constantly twice a Day to put up a Piece of Flannel of the Thickness, though not the full Length of a Finger, rolled hard up, in the place of a *Pessarium*, or, as it is named for Virgins, a *Nascalium*, first dipped and wrung out hot" from an astringent infusion.

The pessaries were generally made "of different lengths and compass, covered over with Cotton and faced with red Sattin, which was drawn forth by the String upon occasion of making water, and again introduced," the pessary being frequently dipped afresh in the hot fomentation.

The *Pessus* has frequently cork circles covered with silk or satin, and these frequently remained several months.

"Instead of the *Cork Pessus*, an ancient Practitioner in the Art of Midwifery told me he had contrived two Pieces of small Whalebone, each about three Inches, and crossing them in the Middle at the top; after he had covered them with a piece of Sarsnet, and fastened them by a Needleful of Silk, he bent them into a double Semi-circle, and then introduced it as high as he could reach against the *Cervix Uteri*, which, by the Springyness of the Whalebone bearing against the side of the *Vagina*, was there supported and retained, there being no occasion (as in the *Pessary*) to extract the same for making Water, neither yet for Bandage to keep it in; the chief care being to secure the Ends of the whalebone by a little Cotton wrapt in the Silk Covering, at each Extremity, that they may not hurt in their Bearings against the Sheath."

"*Mr. Edward Chapman*, Surgeon, who has lately published an Essay on the Improvement of Midwifery, once told me of an Accident that had befallen one of his

perceptible in this as in any other branch of human industry. The numerous specimens which we have obtained are mainly through the kind offices of Mr. Stohlman, junior partner of Tiemann & Co., the celebrated New York surgical instrument makers, and we presume that there are yet many others which have not yet been generally known. These delineations will serve to show the believer in the pessary what has been done, and may serve to prevent the waste of thought and time of some one striving to re-invent an instrument which, being practically valueless, has now fallen into disuse, or to convince one that if, among so numerous a collection—embracing the simple and the complex, and made of every material—none answer the desired purpose, that probably nothing of the sort will, and therefore, it is to be hoped, may direct his attention to more probable methods of cure.

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New York, May, 1863, 141 East 13th Street.

Women, from the wearing of a Ring, which was that of the *Os Tincæ* and *Cervix Uteri* slipping therein, and where it was so collared that a Mortification, from a Fluxion of Humour thereon, had ensued, if he had not, by the Help of his Fingers after the use of an *Emollient* Fotus, disengaged the same, which Misfortune might arise in all Likelihood from the over-large Perforation in the *Circulus*, admitting the *Cervix*, when, after turning *Edgeways*, both Pain and Inflammation might ensue thereon."

LIST OF PESSARIES EXHIBITED IN THE ACCOMPANYING ILLUSTRATIONS.

1, 2, 3, 4, 5. Mauriceau's pessaries.
6, 7. Deventer's.
8. Simpson's elastic.
9. Hunold's elastic.
10. Goelicke's elastic.
11*a*. Saviard's pessary.
11*b*. Saviard's, cushioned to receive the uterus.
12. Hunold's.
13*a*. Recamier's movable.
13*b*. Modified by Gerdy.
14. Smellie's.
15. Levret's ovoid, of cork.
16. Stark's disk.
17. Stark's rings.
18. Juville's Salt-cellar shaped.
19. Zeller's bent.
20. Steidele's elastic.
21. Juville's cylinder.
22. Zeller's curved.
23. Steidele's.
24. Juville's elastic.
25. Suret's movable.
26. Weir's.
27. Simpson's.
28. Zaengerle's.
29. Wiegand's ring.
30. Pickel's double.
31. Gaviel's, inflated with air.
32. Caoutchouc.
33. Caoutchouc, oval.
34. Zaengerle's cylinder.
35, 36, 37, 38, 39, 40, 43. By Bruennighausen.
41. Acrel's elastic.
42. Camper's.
44. Acorn-shaped.
45. Osiander's oval.
46. With descending stem.
47. Hull-Annan abdominal supporter.
48. Charriere's supporter.
49. Kilian's uterine supporter.
50. Moureman's supporter.
51. Knipphof's supporter: *b*, intra-vaginal portion.
52. Kilian's vaginal brace.
53. Romero y Linares' pessary.
54. Scultetus' ring pessary.
55. Mesnard's pessary.
56. Heller's uterine supporter: *a*, vaginal wire stem supporter, before introduction; *b*, after being placed *in situ*; *c*, abdominal pad.
57. Roser-Scanzoni's supporter.
58. Kiwisch's supporter.
59. Berliner's pessary: *a*, closed for insertion; *b*, open.
60. Zwank's pessary: *a*, closed; *b*, open.
61. Zwank's, modified by Schilling.
62. Elastic of Bourgeaud.
63. Schilling's, closed for insertion.
64. Schilling's, open.
65. Schilling's, with side springs.
66. Schilling's, with side springs.
67. Schilling's modification.
68. Eulenberg's open, in position.
69. Dr. Skinner's instrument for prolapsus, and with stem for intra-uterine application: *a*, hard rubber stem, to be first inserted with a projecting wire, *b*, over which the main pessary, *c*, is slid.
70. Simpson's pessary.
71. Dr. Thomas's design for prolapsus, ante or retroversions: *a*, as before introduction, the flat portion intended to run up before or behind the vaginal cervix, to restore it to its normal position; *b*, as *in situ*, with its movable flanges outspread, to impinge on the vaginal walls.
72. Noeggerath's stem pessary, with elastic fastening.
73. Plantation pessary, composed of cotton fibre, sewed together in any desired form.
74. Meigs's double ring pessary, of gutta-percha.
75. Newell's, of hard rubber, the long extremity of which is intended to pass out of the vagina, and,

by resting on the vicinity of the urethra, to support the instrument in its desired position.

76. Kissam's ivory ring pessary before introduction, intended to be held *in situ* by a stem passing out of the vagina, and secured by a band passing round the body above the pubis: *a*, the transverse position of the ring after introduction.
77. Scanzoni's, fastened externally with an arrangement permitting the lateral motions of the body.
78. Merriam's glass pessary (patented), to be fastened externally.
79. Vail's boxwood, cup-shaped, with elastic centre, and elastic cushion for labia.
80. O'Leary's hard rubber cup, with a screw to regulate its length, resting on a plate secured externally.
81. Globular, silver gilt, of a similar construction.
82. Taft's ball and socket (patented).
83. Of gutta-percha.
84. Banning's, of hard rubber.
85. Physick's silver gilt globe pessary, improved by Tiemann & Co.
86. Elmer's silver gilt.
87. Blumenthal's gilt, steel springs.
88. Dixon's silver gilt, egg-shaped.
89. Meigs's gutta-percha ring.
90. Schaffer's spiral spring.
91. Davis's, of hard rubber; the rings across it can be removed or added, as length is desired: *a*, represents the instrument as introduced; *b*, as *in situ*.
92. Hard rubber, cup-shaped.
93. Lalanne's spiral spring, inflating.
94. Sims' pure, flexible Britannia pessary, capable of being bent in any desired form.
95. Hodge's horseshoe, of gutta-percha.
96. Tiemann & Co.'s improved double ss, of hard rubber.
97. Reising's self-holding, for retroflexions. No. 1 represents the instrument prepared for introduction; No. 2, after being inserted, the pad *a* pressing against the vaginal cervix, the plate *b* upon the pubis, screwed firm by the key 3.
98. Emmet & Sims' rings of pure Britannia or tin, covered with gutta-percha, which can be bent into any shape.
99. Of sponge, fastened to a wire and supported externally.
100. Galvanic, with a copper globe to rest in the vagina and a zinc plate over the pubis.
101. Gescheidt's inflating, gum-elastic.
102. Silver expanding pessary of Dr. ———, of Montgomery, Alabama.
103. Lalanne's hard rubber, with gilt springs.
104. Valleix's original stem pessary before and after introduction.
105. Simpson's stem pessary, with spring below the ball admitting motion added by Tiemann & Co.
106. Wright's silver gilt.
107. Tiemann & Co.'s: *a*, before introduction; *b*, placed *in situ* by means of a screw in the shank, fastened by a fillet around the abdomen.
108. Rochester's Valleix's improved.
109. Peaslee's intra-uterine, self-retaining.
110. Simpson's galvanic (copper and zinc), self-retaining. Some have the different metals at the extremities of the stem, and others the metals run the whole length of the stem.
111. Hitchcock's hard rubber.
112. Small silver, self-retaining intra-uterine; by turning a screw the end is opened within the uterus.
113. Miller's intra-uterine: *a*, of hard rubber; *b*, of lead.
114. Sims' intra-uterine: *a*, before introduction; *b*, as *in situ*.
115. Budd's intra-uterine: *a*, as before introduction by means of a holder; *b*, in position.
116. Elliott's intra-uterine, with movable stem.

117. Conant's stem and ring pessary: *a*, as introduced; *b*, when expanded; *c*, lateral view.

118. Peaslee's intra-uterine, gutta-percha. The stem for introduction is to be removed.

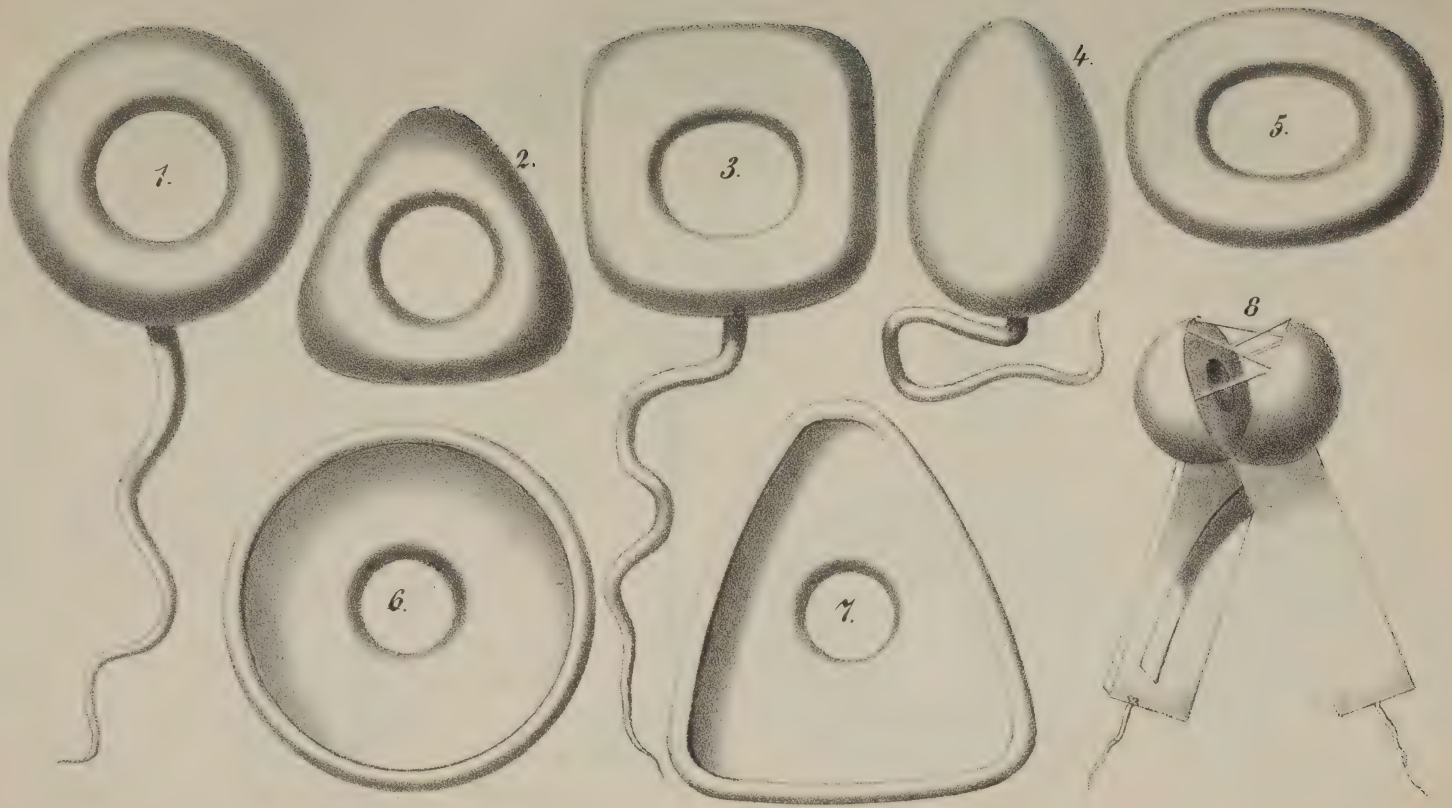
119. Simpson's intra-uterine, of coin silver, represented as introduced, the stem taking a perpendicular position when *in situ*.

120. Edward's stem: *a*, before introduction; *b*, when in position.

121. Perkins' intra-uterine: *a*, in two portions, the stem part inserted, and the ring, then passed into position, is fixed as in *b*.

122. Instruments made of flexible wire, and also of hard rubber, fastened externally: *a*, for anteversion; *b*, for retroversion; *c*, for prolapsus.

123. Dr. Hull's intra-uterine stem pessary, entirely of hard rubber: *a*, representing stem before introduction.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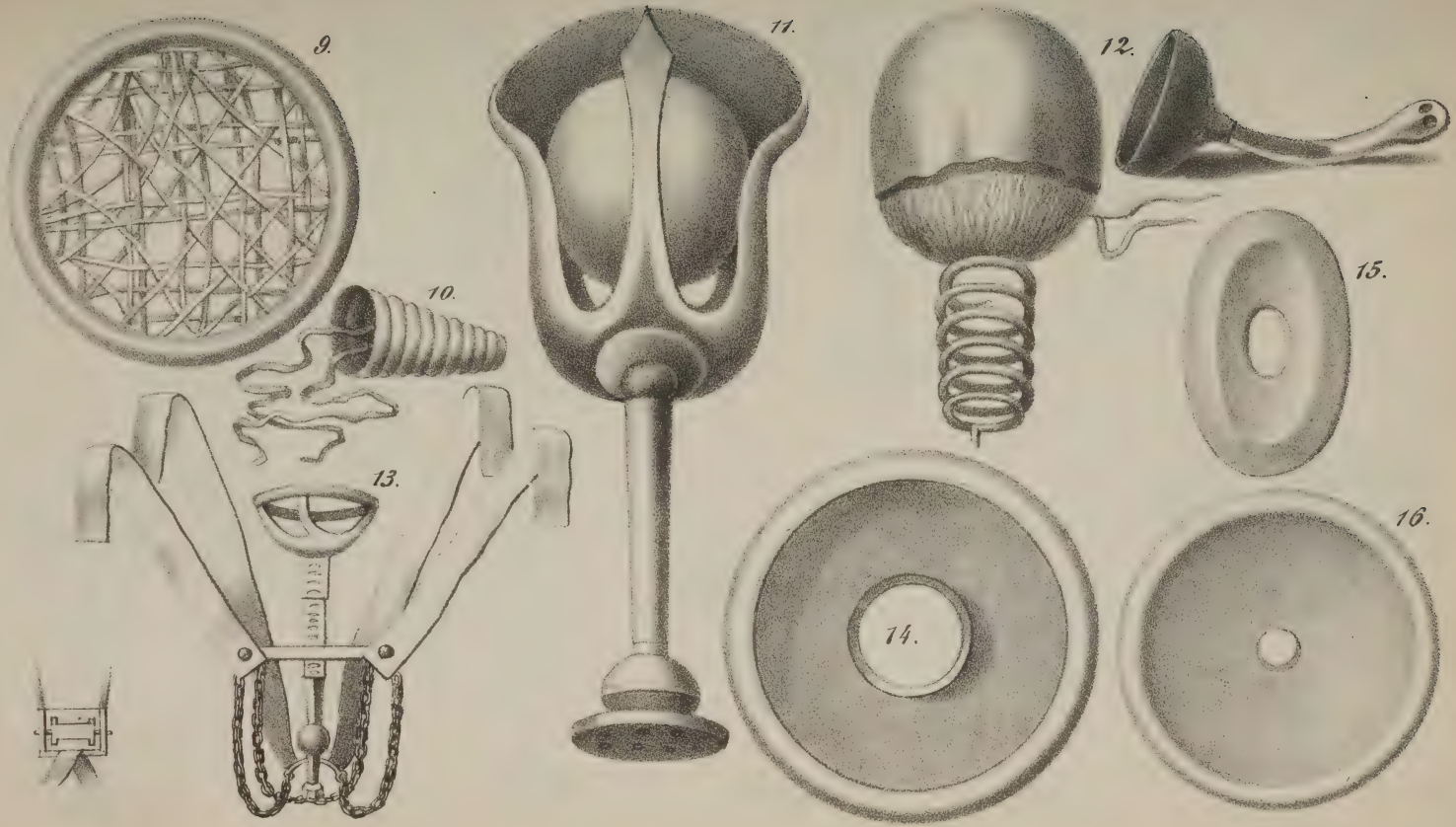
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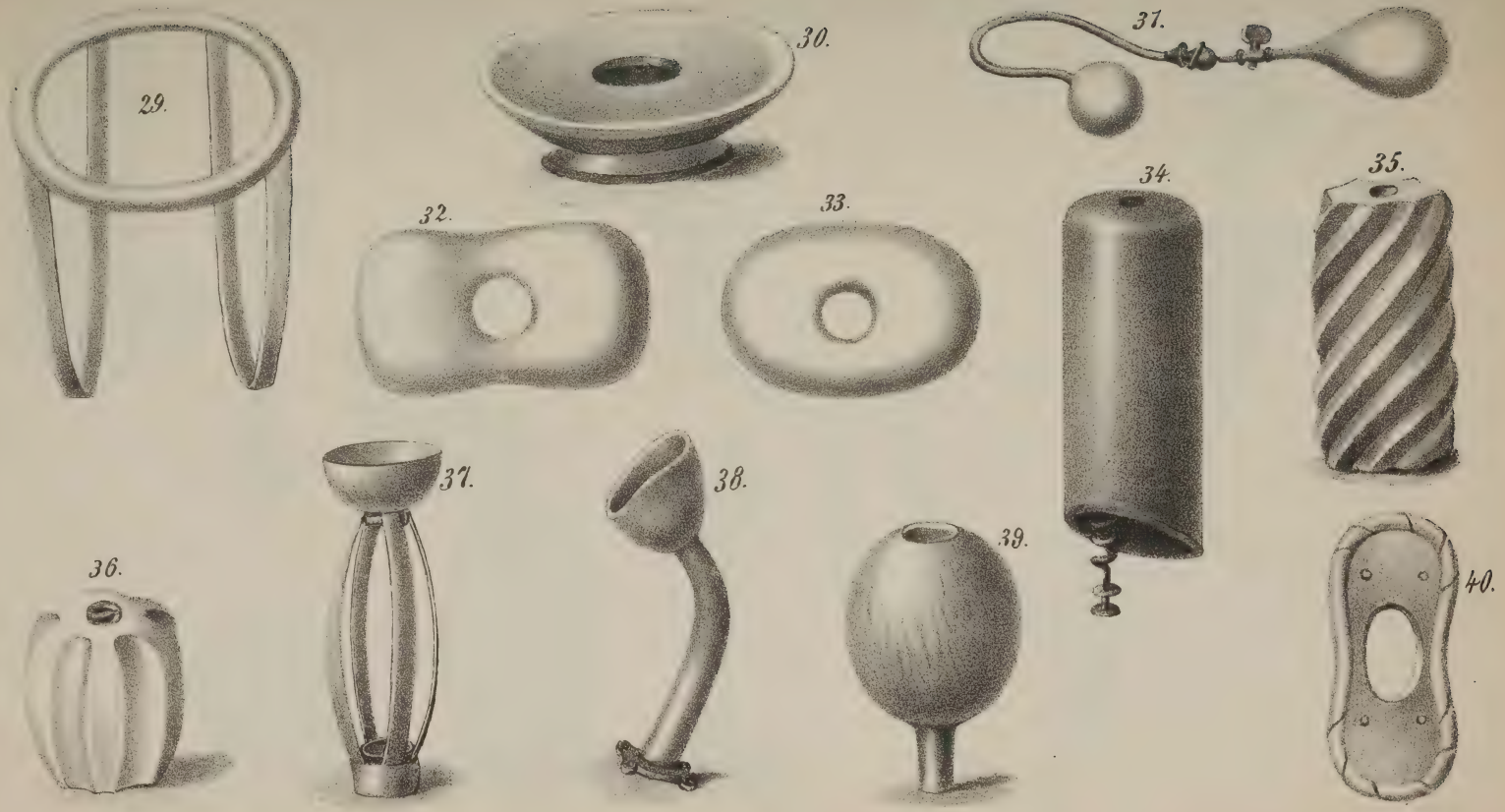
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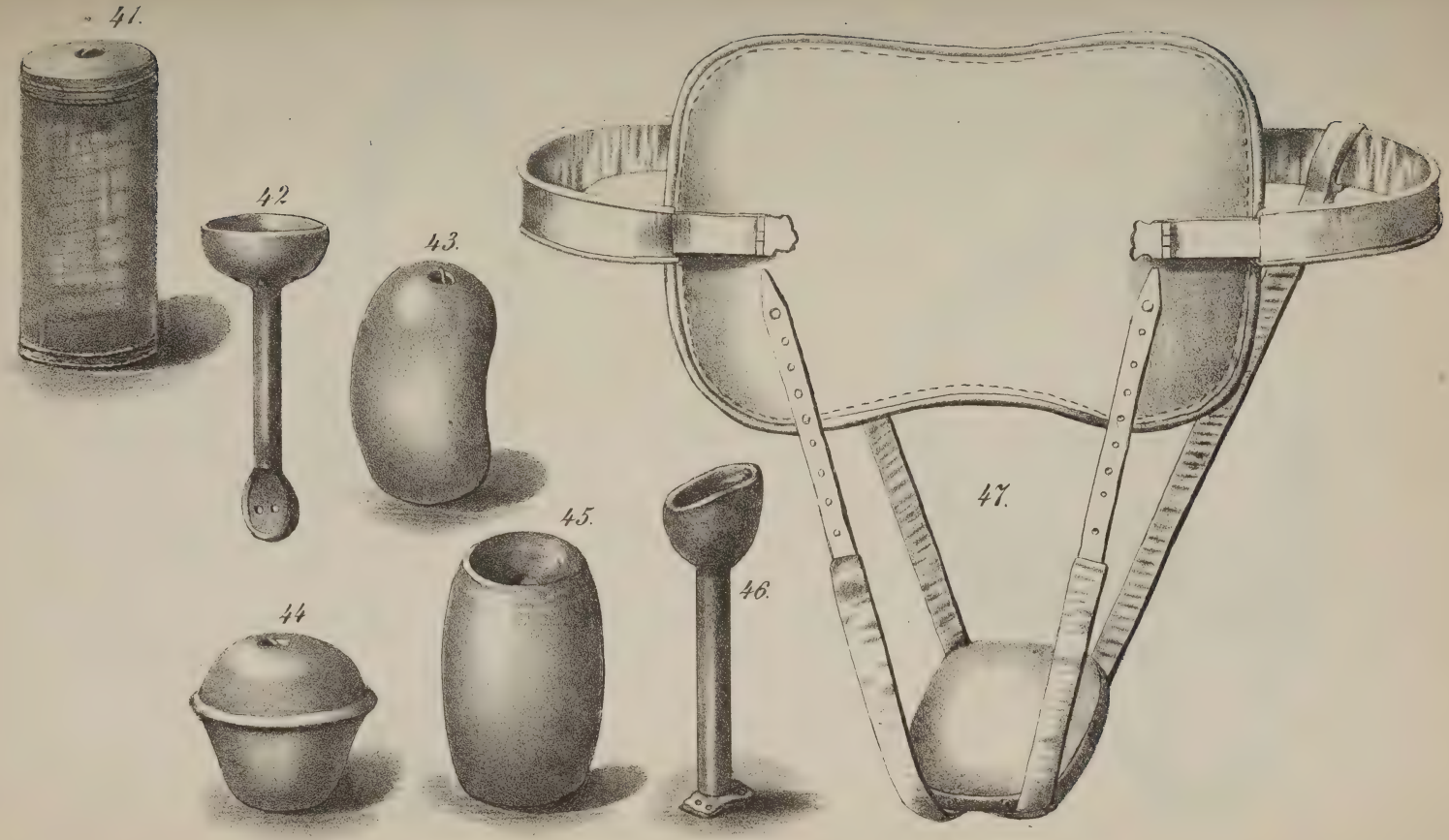
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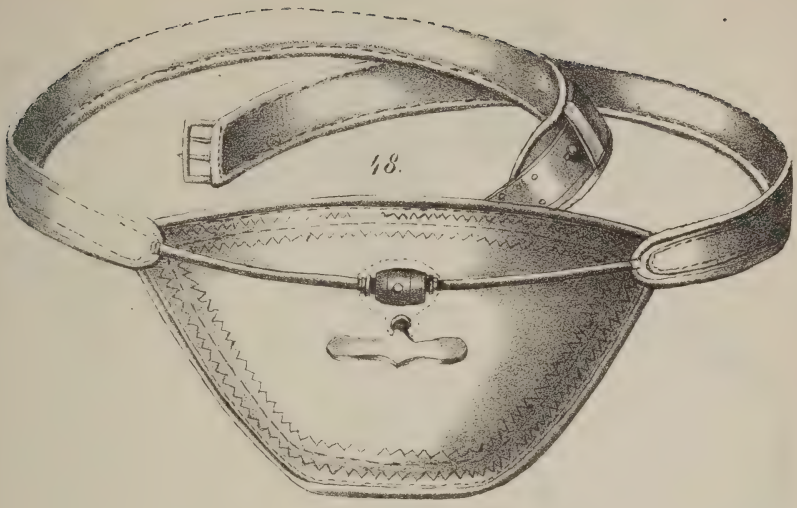
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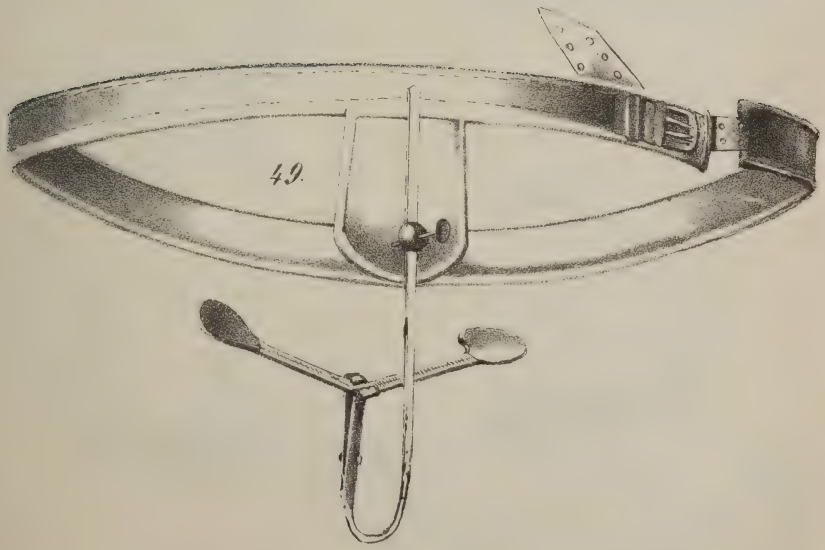
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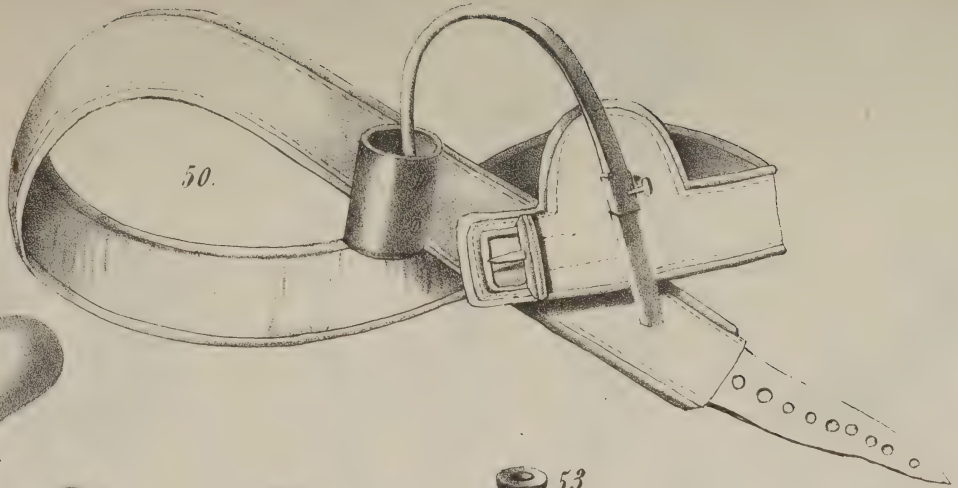
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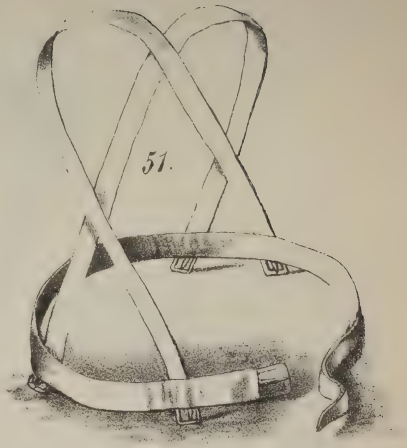
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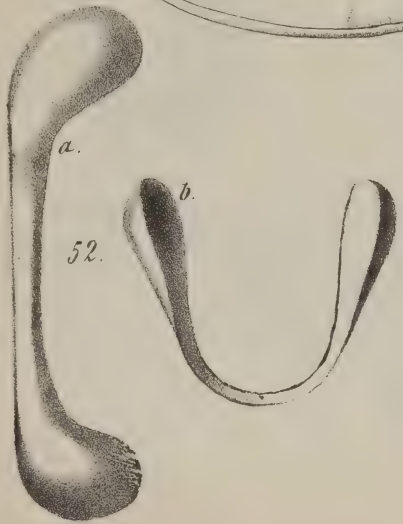
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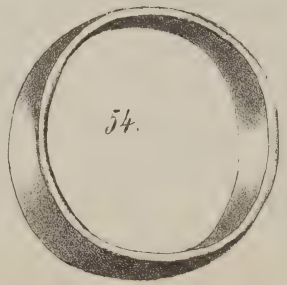
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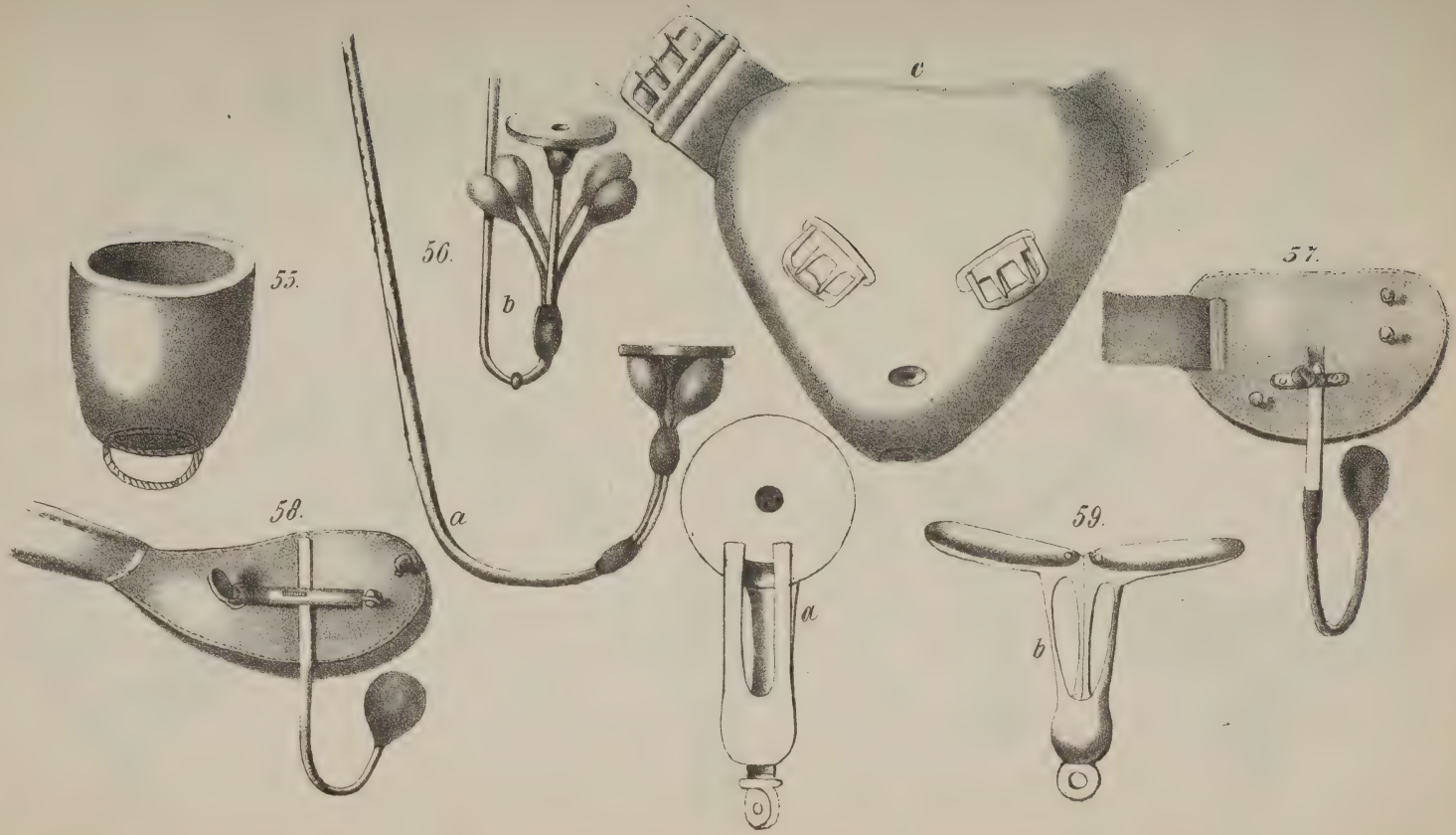
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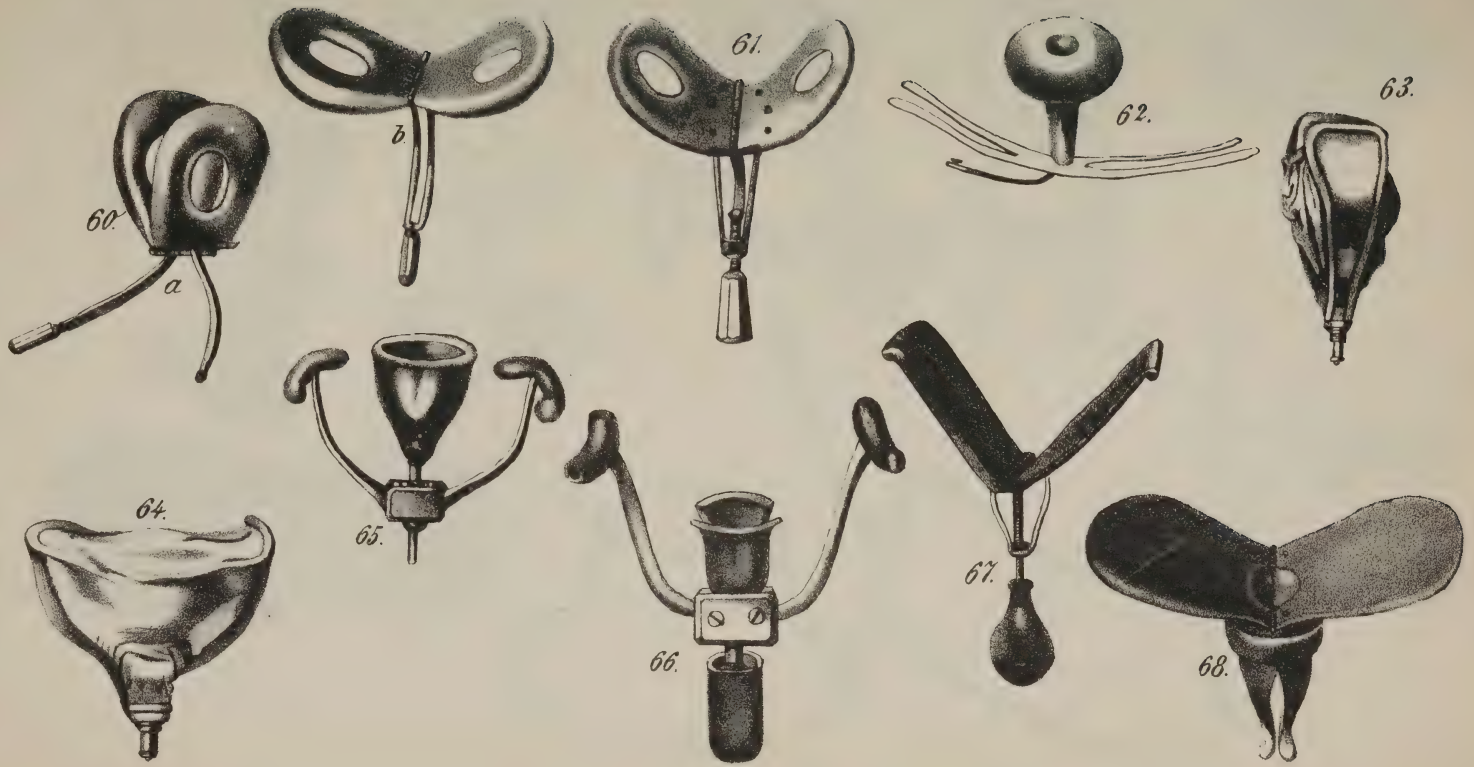
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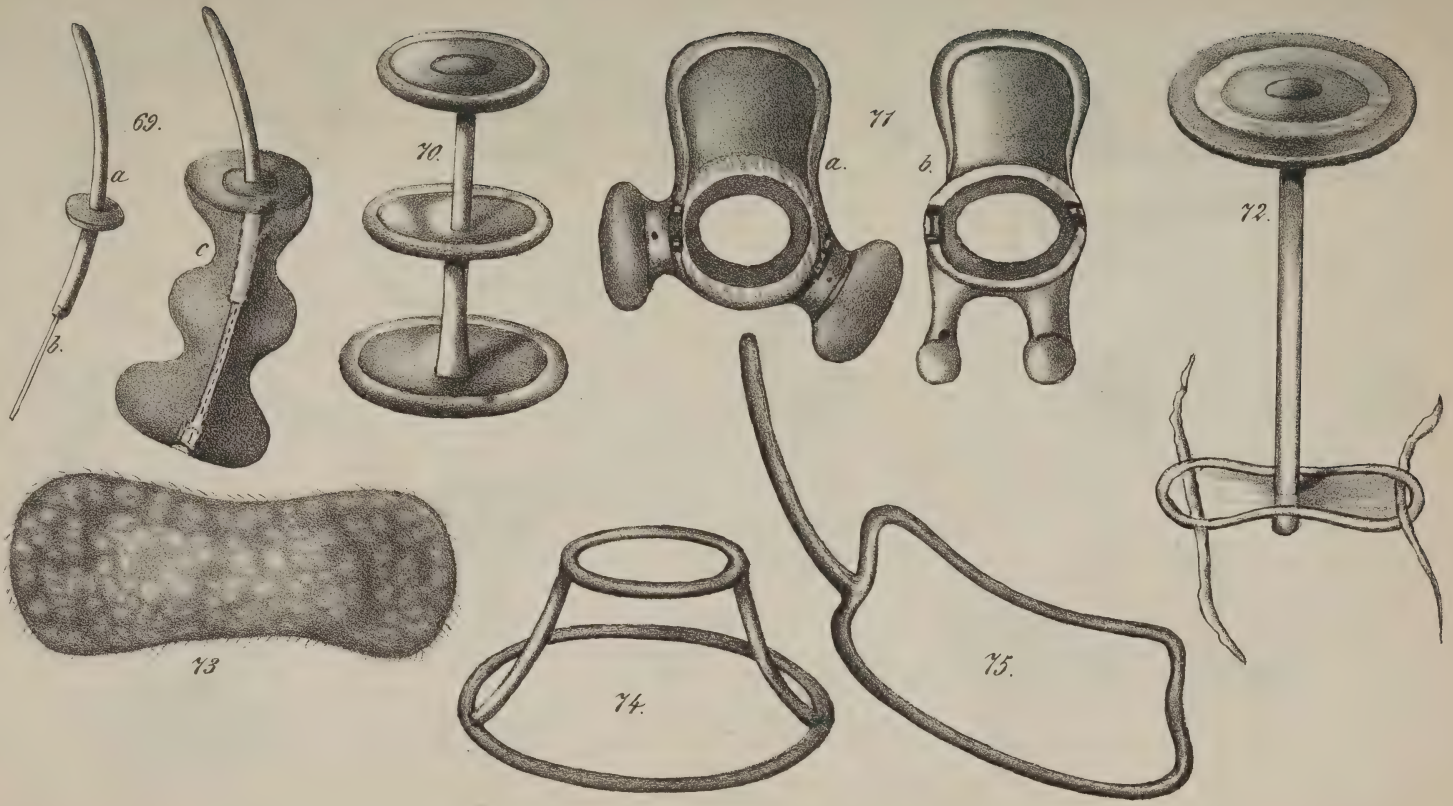
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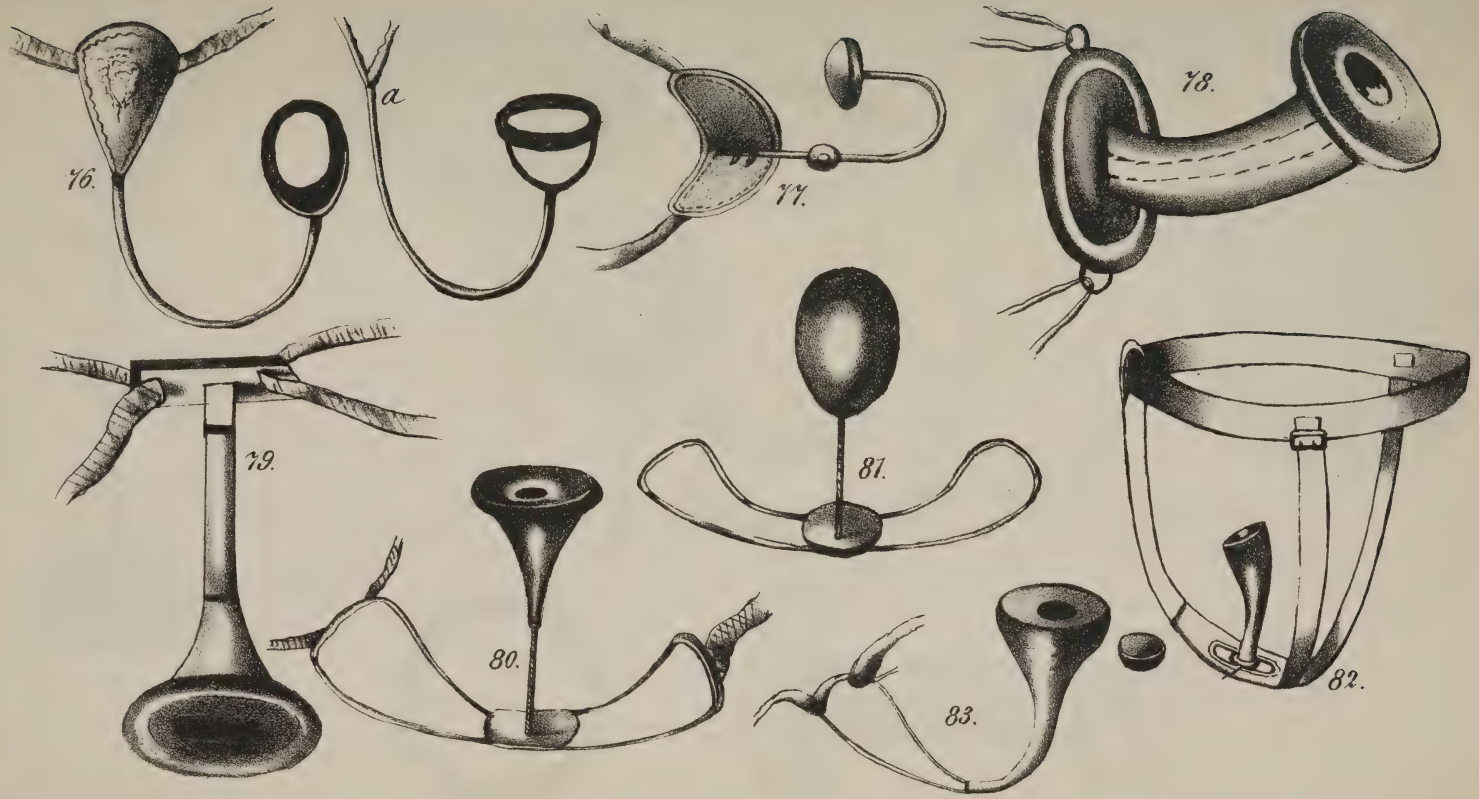
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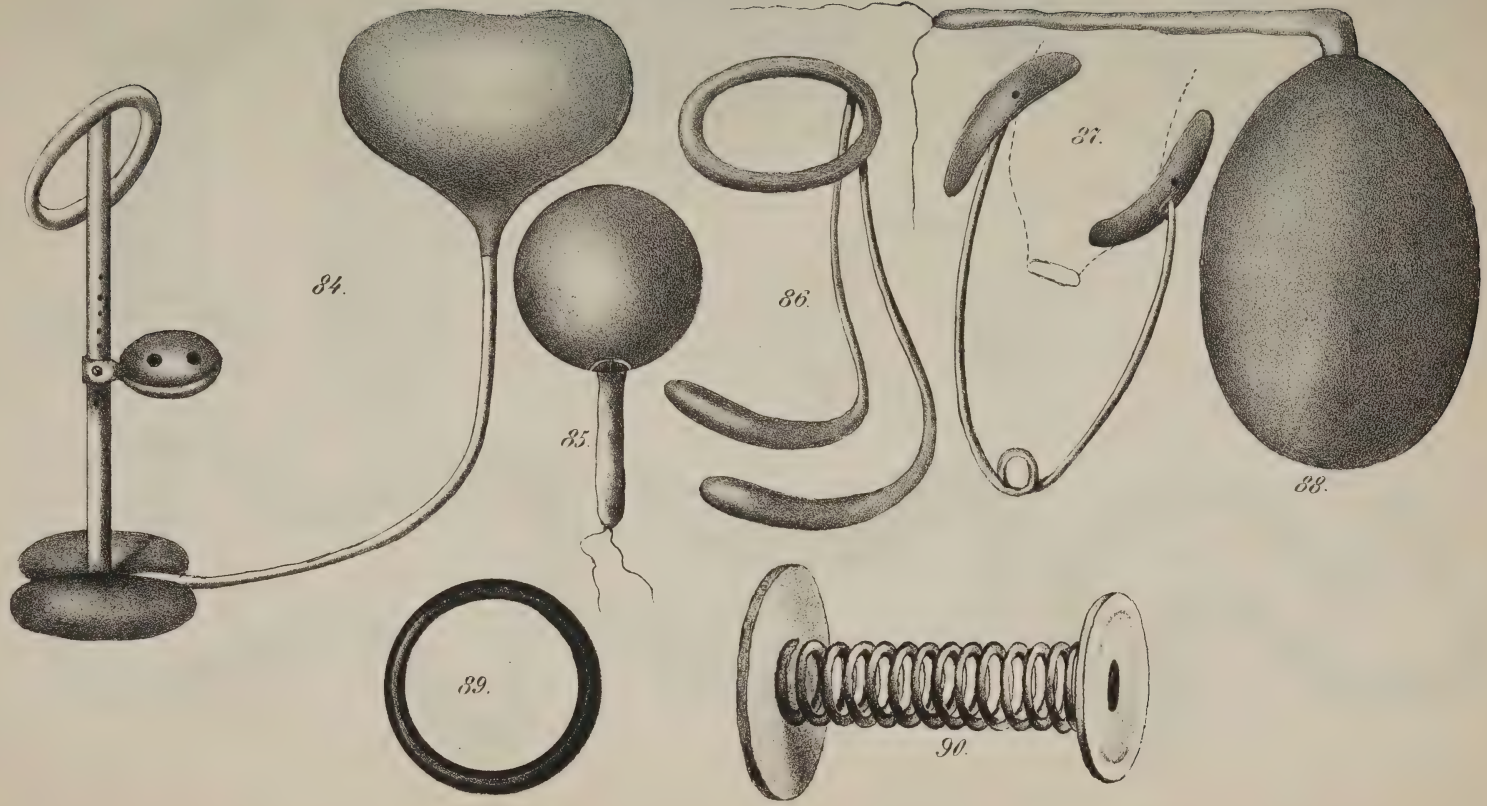
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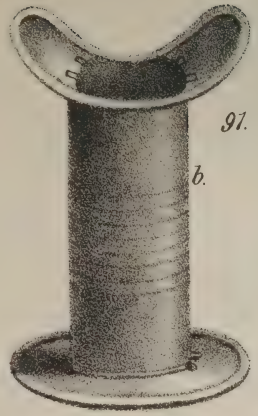
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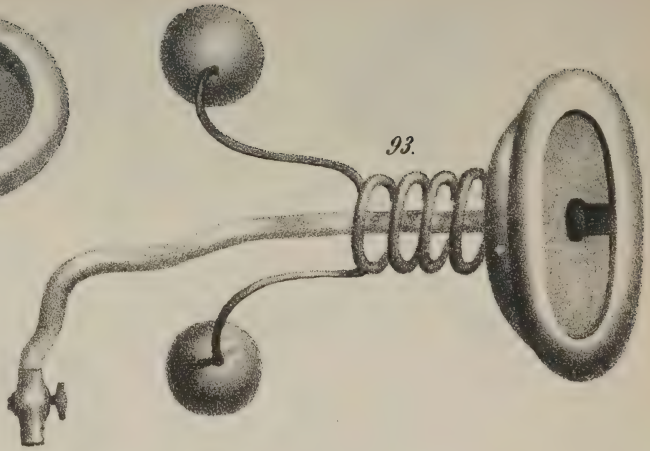
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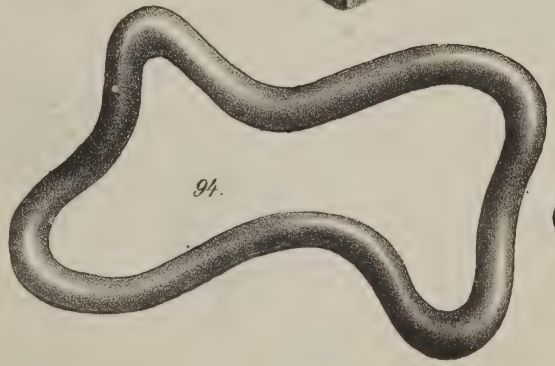
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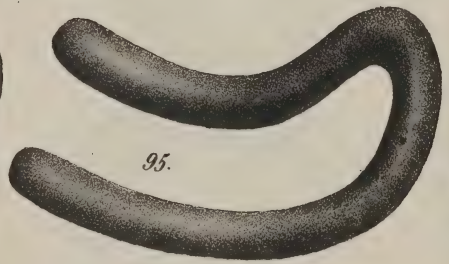
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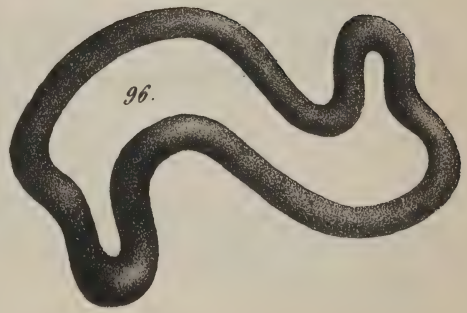
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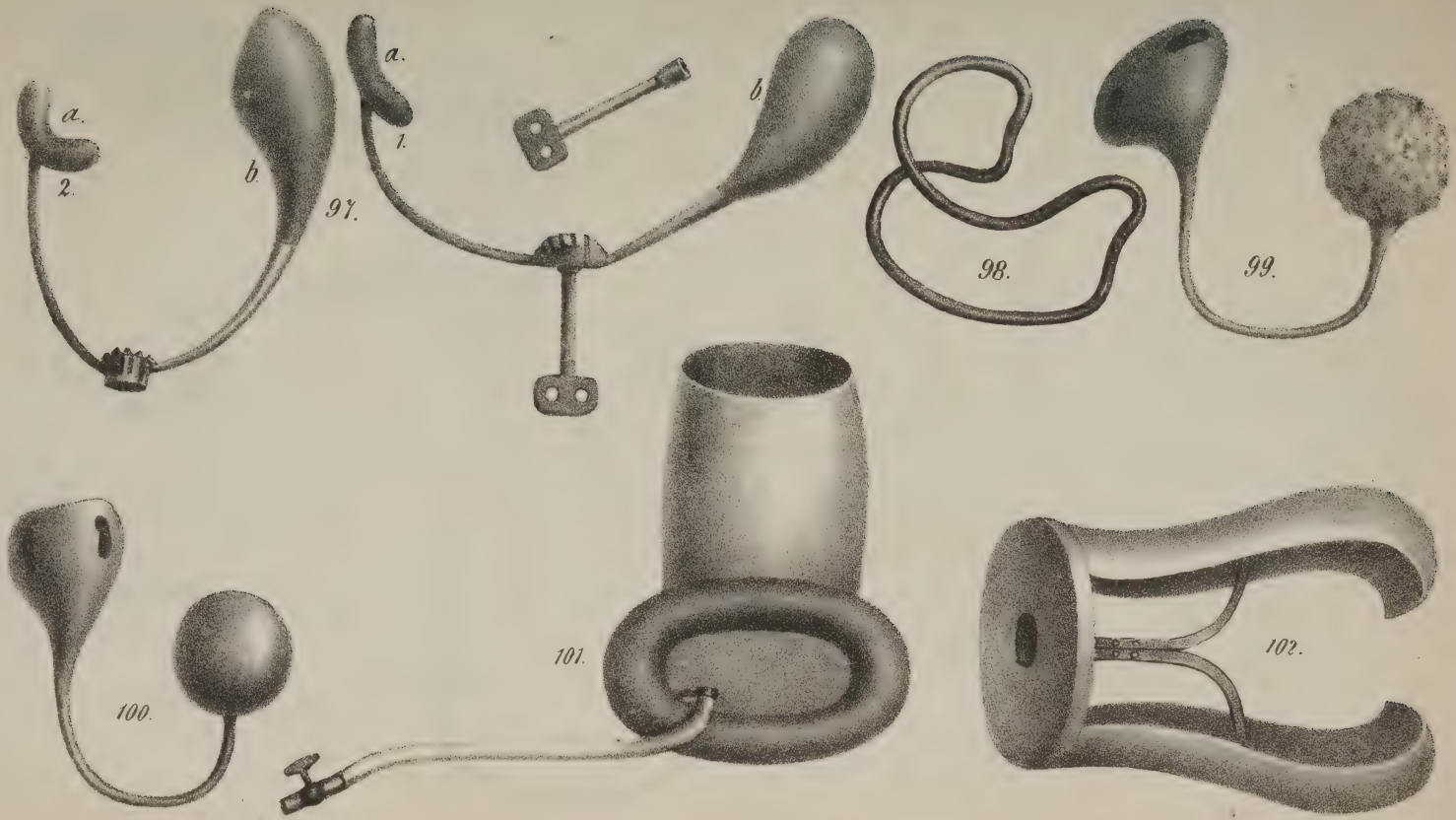
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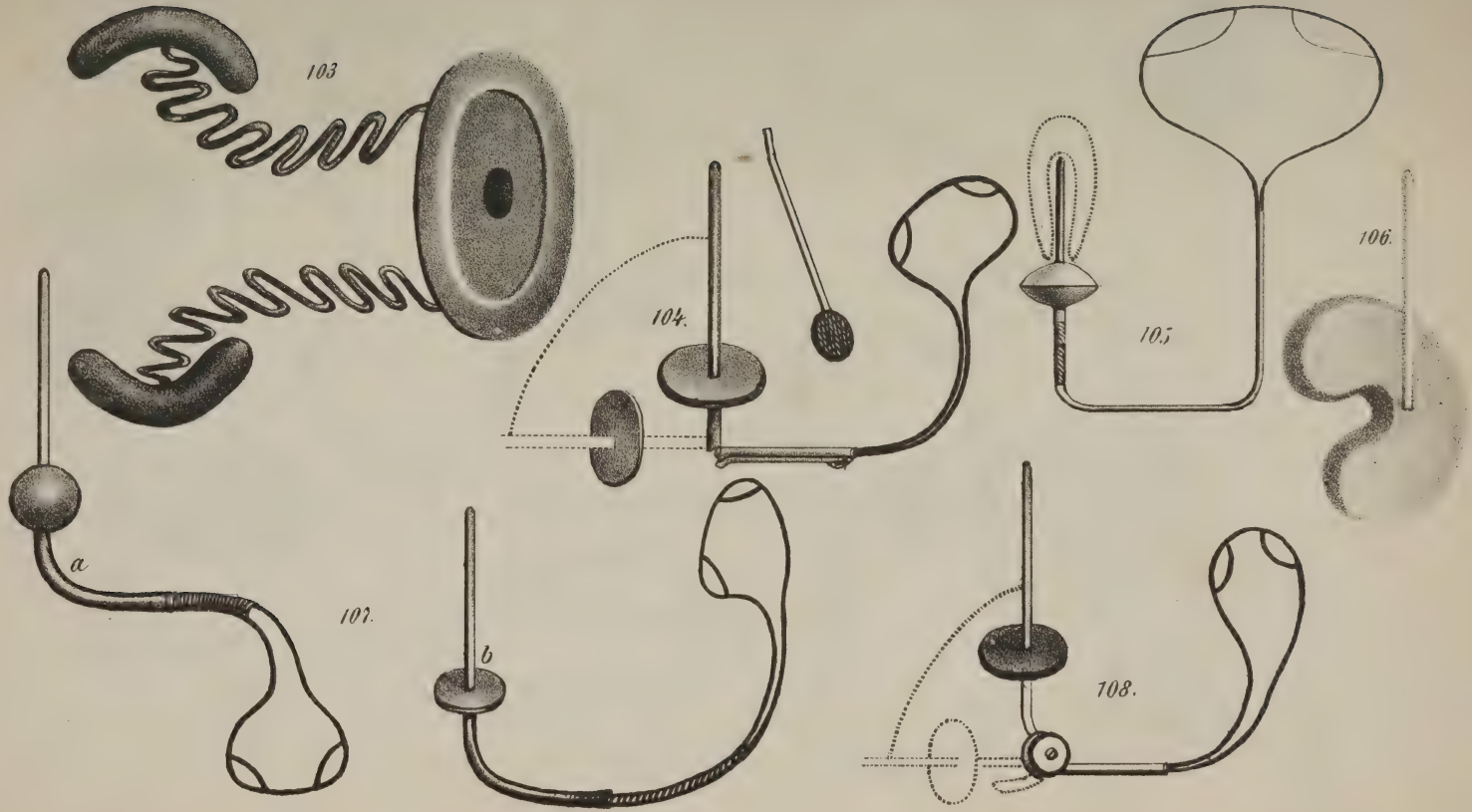
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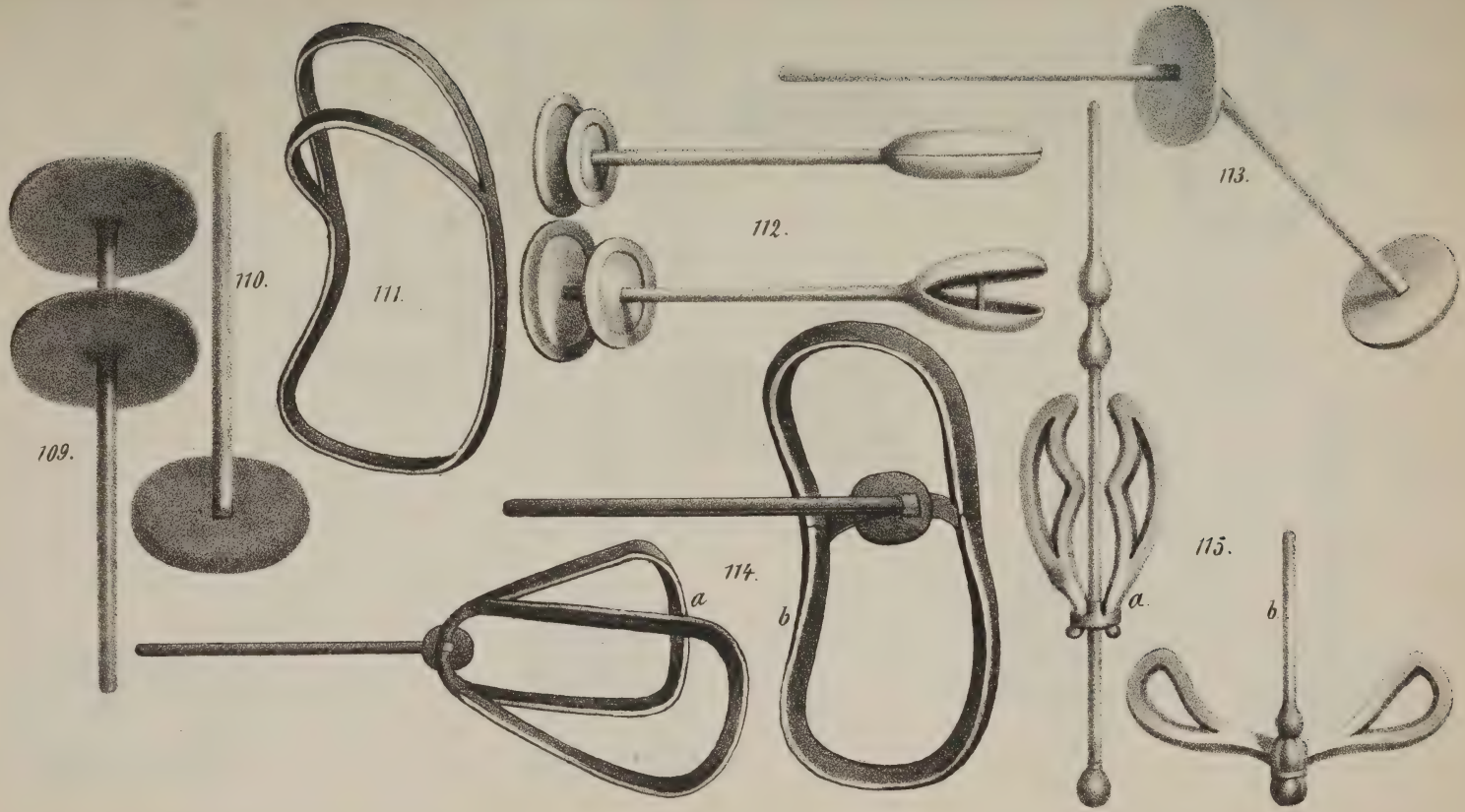
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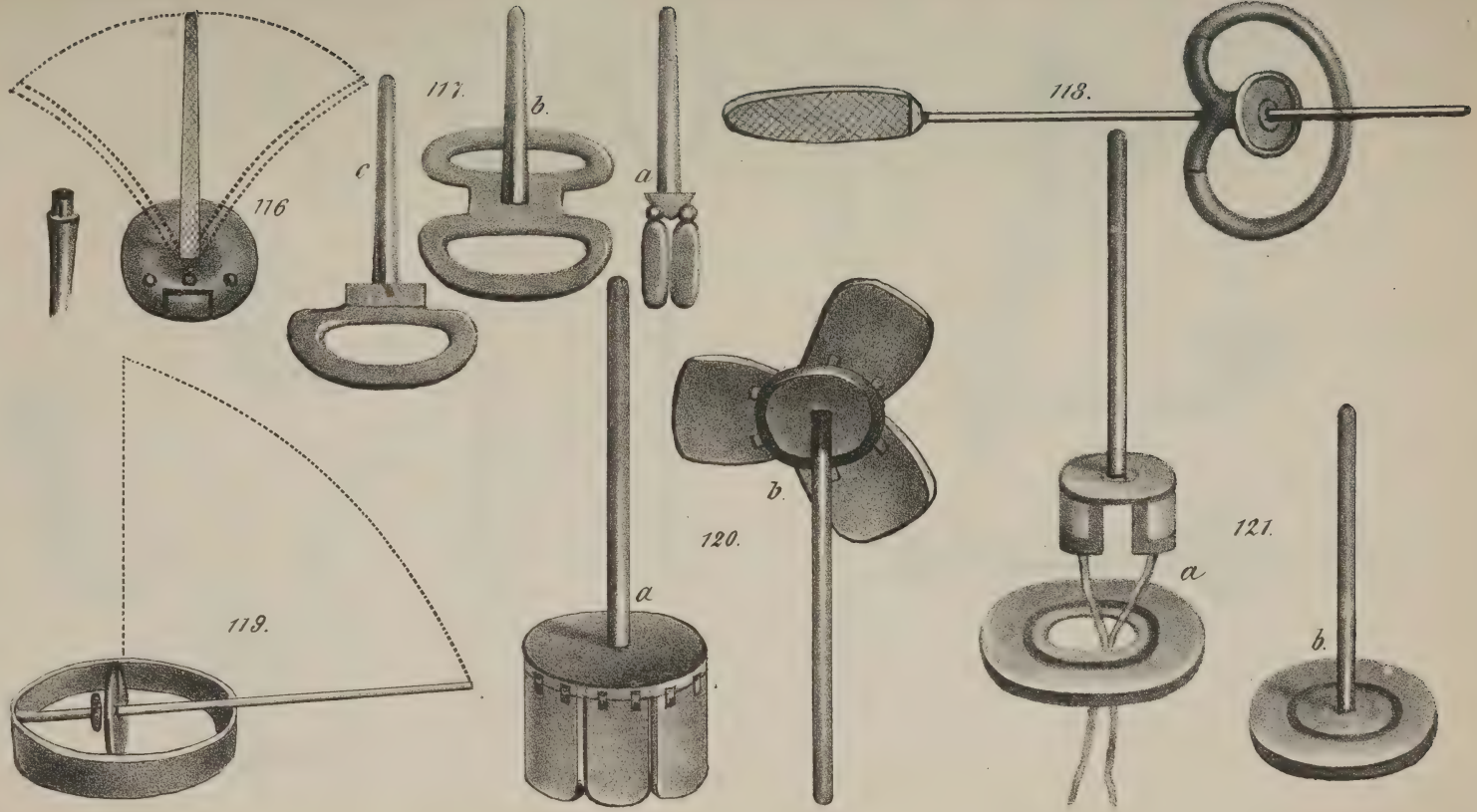
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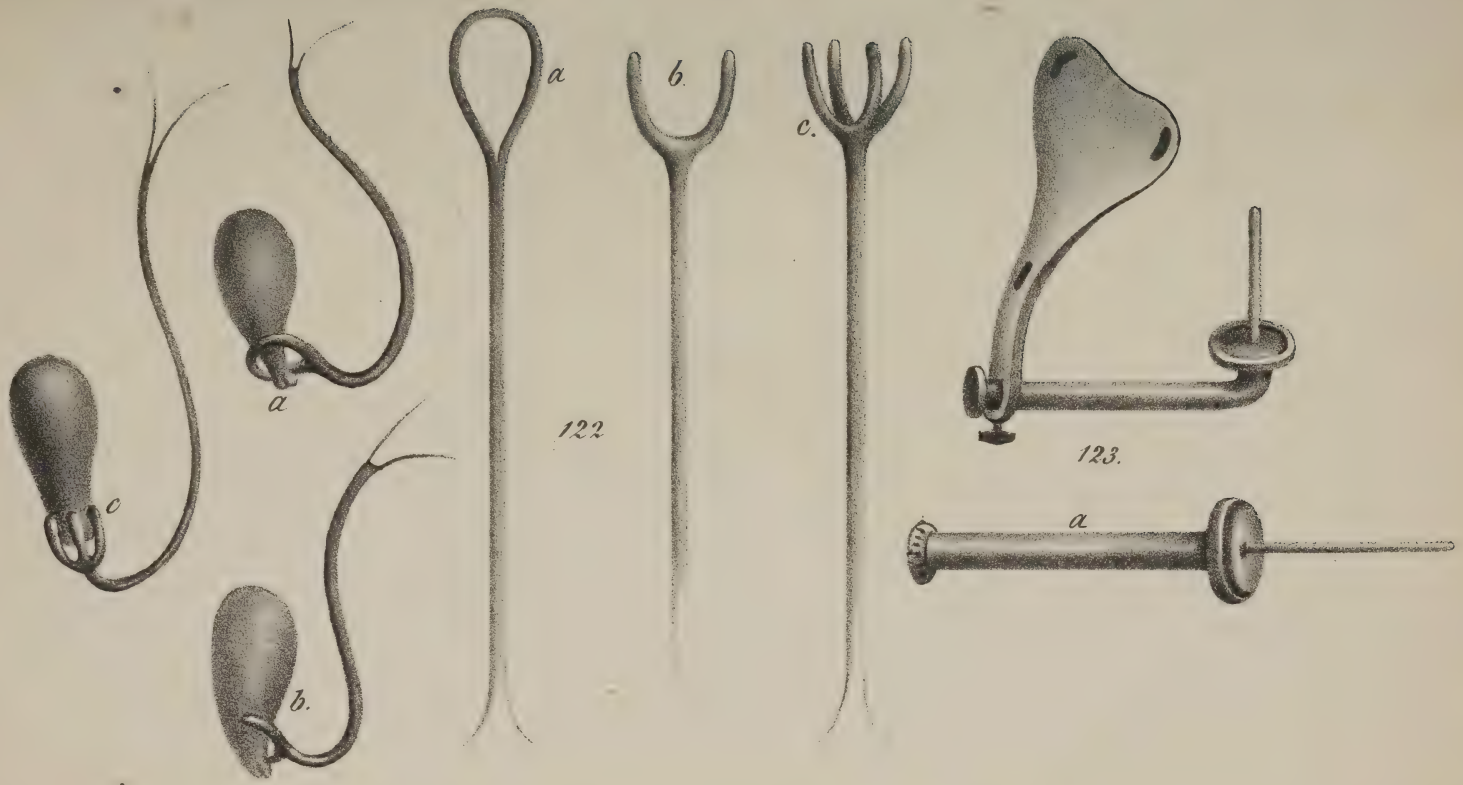
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THE

RELATIONS OF FEMALE PATIENTS TO HOSPITALS FOR THE INSANE;

THE

NECESSITY ON THEIR ACCOUNT OF A BOARD OF CONSULTING PHYSICIANS TO EVERY HOSPITAL.

BY

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OF BOSTON,

SURGEON TO THE NEW ENGLAND HOSPITAL FOR WOMEN.

THE RELATIONS OF FEMALE PATIENTS TO HOSPITALS FOR THE INSANE: THE NECESSITY ON THEIR ACCOUNT OF A BOARD OF CONSULTING PHYSICIANS TO EVERY HOSPITAL.

In late communications to the American Academy of Arts and Sciences, and to the Suffolk District Medical Society of Massachusetts,[1] I have stated certain fundamental propositions or laws, whose acceptance is essential to any rational explanation or treatment of the mental diseases of women. These propositions are as follows:—

I. That in women mental disease is often, perhaps generally, dependent upon functional or organic disturbance of the reproductive system.

II. That in women the access or exacerbation of mental disease is usually coincident with the catamenial establishment, periodical access, or final cessation.

III. That the rational and successful treatment of mental disease in women must be based upon the preceding theories, which I claim are established,

1. By many analogies, physiological and pathological, in the cerebral manifestations of the human female and that of the lower mammals;

2. By clinical observation; and

3. By the results of autopsies of the insane, both in private practice and, where made with equal impartiality, in insane asylums.

I have worded the last expression with especial reference to the facts that in autopsies by psychological specialists, diseases of the brain are naturally those first sought for: and that in autopsies of insane women as compared with those of insane men, disease of the brain as a primary lesion very rarely exists. These facts are acknowledged; for further remarks upon them I must refer to the preliminary paper to which I have already alluded.

[1] Boston Med. and Surg. Journ., April, 1864, p. 189.

From the above propositions, corroborated, I believe, by the experience of every unbiassed observer, we advance to three plain and practical questions, which are to open up a new, broad, and very fruitful field of obstetric work. These are:—

First. To what extent can the insanity of women be medically or surgically treated?

Second. Is such treatment at present generally effected or even attempted in Insane Hospitals? and

Third. How can it there be accomplished?

I am aware that I have broached a delicate topic. The comparison, however, of doubtfully insane, of almost insane, and of decidedly insane women, in all their range from aggravated hysteria to actual madness, has so long been my daily occupation that I am enabled to express myself plainly upon this subject. It is one that has been hitherto neglected, for the sole reason that its proper side of approach, that from an obstetric point, happens from circumstances beyond their control, almost always to have been closed to superintendents and others charged with the management of the insane.

The first question that I have now proposed, To what extent can the insanity of women be medically and surgically treated?—has as yet hardly been propounded in insane asylums at all, although its solution in active everyday practice is, within certain limits, of common enough occurrence. I have purposely limited my statement of the extent to which this treatment has as yet been carried in private practice. Instances in point, however, the ordinary forms of the so-called puerperal mania, and of that other type of obstetric insanity to which in its different manifestations I would attach the equally legitimate title of catamenial mania, are familiar to every observer. In these and in others of the host of deviations from mental sanity in women, there is some reflex transference of irritative action, the source of which, if searched for, is almost always to be discovered. It is just as unscientific here, and generally as futile, to treat merely or primarily the mental disturbance, which is usually a symptom only or a consequence, as it has been to amputate an hysterical knee, to attempt the Cæsarean section, or to cut for ovariotomy in cases of the so-called spurious pregnancy, or, as is still constantly done, even at the present day, to stimulate or blister, or apply the moxa or actual cautery to spines irritated sympathetically and through reflex action by an abraded, displaced or other-

wise disturbed womb. The necessity of removing a cause to prevent or to cure its effect is as decided in mental pathology as in physical. We recognize it everywhere else; we must recognize it in the treatment of insane women—no matter whether from quiet and inoffensive creatures, or chaste and pure, they have become habitually thievish, profane, or obscene, despondent or self-indulgent, shrewish or fatuous, or, as the parturient cat or sow, they have destroyed their offspring, or in other cases have attempted to destroy themselves.

In many of these instances the relation of cause to effect, if otherwise doubtful, is at once shown by the result of the treatment. I might relate many cases in illustration of this fact from my own experience, but shall confine myself to a single one.

Case.—During the past year I have had charge of a young lady afflicted with that not uncommon disease, mechanical dysmenorrhœa. This patient, unmarried and formerly a schoolteacher, was sent to me by a physician and had previously consulted several others. She confessed to me that while she never had had sexual intercourse, she had experienced, from a period long preceding her first seeking medical aid, excessive sexual desire, amounting indeed to what is technically termed nymphomania—a symptom merely, as are most of the mental disturbances of women. The attacks of this were very clearly coincident with the menstrual period, and so extreme that the patient could with difficulty restrain herself from soliciting the approach of the other sex. She could not restrain herself from frequent and excessive masturbation. There was little irritability about the clitoris or other external organs, the patient herself being inclined to recognize a deeper and inner origin for her suffering. The morbid desires and the disgusting propensity thence arising ceased together with the dysmenorrhœal pain, upon freely incising the cervix uteri and dilating its canal. They have not since returned, save in one single instance, when an acute attack of the erotic desire, plainly resulting from indulgence in so-called pepper tea, was at once allayed by the application of potassa fusa to the cervix. Now were not this treatment based, as it is, upon a broad and general physiological principle, its effect as a defence in similar cases to female chastity, threatened and undermined by sources of irritation within the patient herself, would be sufficient to entitle it to our respectful consideration. The above case must not be thought more pertinent than others of a similar reflex character, where, however, there is no erotic desire

or other direct symptom of genital irritation. However masked, they all instance a single law.

It would be difficult to state precisely to what extent appropriate medical and surgical treatment can be effectual in the cure of female insanity, the subject as presented in this light being comparatively new to the profession. There can be little doubt, however, that in so far as the mental disturbance retains its original reflex character and has not merged into organic cerebral change, which, as I have said, is comparatively rare in women, to this extent and so long should we have a reasonable hope of success, nearly as great, perhaps, as in relieving the other reflex disturbances to which the female is confessedly so prone.

As regards the second question I have broached—Is such treatment effected or even attempted in Insane Hospitals?—the answer is patent. As hospitals are at present organized, the proper treatment cannot be afforded insane women, for sufficient reason.

To the general organization of our public asylums, or to its details, so far as they go, I would take no exception. My complaint is, that their most excellent organizations do not go quite far enough to cover the important class of cases we are now considering. They stop just one step short of the mark. I am here speaking from personal observation, of the working, theoretical and practical, of many asylums, among the best in this country—and there are in the world none in advance of the American hospitals for the insane—so that in my remarks upon this subject I speak with perfect confidence.

The reason that mental disease in the female, dependent upon reflex uterine or ovarian irritation, is not generally treated at hospitals for the insane in the same manner or as successfully, barring only the lessened risk of homicide or of suicide before cure, as in private practice, is in the main the following.

The whole and sole charge of the patients, medical, moral, and economical, is thrown entirely upon the superintendent of the hospital. This is certainly an advantage in everything concerning the government of the establishment, for it prevents all clash of opinion, all evasions of duty. It is excellent in every respect, save alone as concerns the weight and the extent of medical responsibility. I would by no means lessen the superintendent's authority, but, as will be seen, would free him from his present involuntary embarrassment.

The superintendent, as at present situated, cannot make such

examination of a female patient, or pursue such methods of treatment as are absolutely required for the relief of many forms of obstetric disease, upon the existence of which, as I have said, her mental malady not unfrequently depends. He is absolutely prevented from this alike by regard for the patient's welfare, for his own personal reputation, and for that of his hospital. So constantly compelled to see the patient, he appreciates the importance as regards other details of treatment, moral, &c., that he should retain her confidence and escape her fears; he recognizes the danger lest an endeavor to arrive at a proper diagnosis of her disease should seem to the disordered mind only an attempt at improper and unpardonable liberties with her person, and should she ever entirely recover her reason, be so represented to friends and to the community by her perverted and imperfect memory. These risks, so great in sane patients under temporary aberration from anæsthesia, have been realized to the full by Dr. Beale, of Philadelphia, and others; with the insane they are increased.

In this strait, upon whom is the superintendent to rely? Not upon his assistants, surely, younger men and often merely pupils—at any rate, placed in the same relations as himself to the patient, the hospital, and the outside world. Here is the strange and paradoxical example of a physician pledged by even higher than ordinary motives to the relief of his suffering patients, concerning a large proportion of whom, however, his hands and his judgment are practically and entirely fettered. He cannot search for the manifestations of disease, nor were they known to be present can he relieve them; and yet we all contend and strive to persuade the community that our hospitals for the insane are no longer prisons, that they are not houses for detention, but for cure. The existence of these facts, and the justness of the above reasoning, superintendents have repeatedly acknowledged to me with regret and a hope that the evil may be remedied.

A change is necessary; how can it be accomplished? By appointing to every asylum in the land a board of consulting physicians, useful in ordinary cases of insanity, but absolutely indispensable in the instance of insane women. These gentlemen should be selected from practitioners in the immediate neighborhood of each asylum, due regard of course being had to their character and to their professional fitness. The position should be an honorary one, and like that at general hospitals, unattended by pecuniary emolument; and the superintendent should be left entirely to use

his own discretion, as to calling or not upon the members of his board for advice, just as is allowed to attending physicians or surgeons at general hospitals; the intention being to render consultations and a division of medical responsibility possible, not compulsory. Strange as it may seem, there appears to exist but a single asylum in this country, to which there is appended a board of medical consultation. I refer to that most admirable establishment, the Butler Hospital at Providence. So far as I have been able to ascertain, and I have been aided by those most excellent authorities in all matters pertaining to the insane, Drs. Ray, of Rhode Island, and Edward Jarvis, of Massachusetts, in no instance save the one referred to, have boards of medical advice been included among their officers and means of management, at our insane hospitals.

The Connecticut Retreat has a Board of Medical Visitors, whose position is an anomalous one; as much supervisors of general administration apparently as advisory in the treatment of patients, they are perhaps in reality more strictly honorary than either.

There was formerly an Advisory Board attached to the City Lunatic Hospital of New York at Blackwell's Island, discontinued for no known reason.

The New York Hospital has Consulting Surgeons and Consulting Physicians, but they appear to have nothing to do with the Bloomingdale Asylum, although it is under the same general authority as the hospital. The case is similar to that of the McLean Asylum, which, though under the same trustees, is yet separate from the Massachusetts General Hospital. The last has Consulting Physicians and Surgeons, but they have nothing to do with the insane department. They may, it is true, have been occasionally consulted by Dr. Bell, and possibly by his successors, in cases of doubtful sickness of a general character, just as other gentlemen from time to time have been called upon to give opinion; as matters now remain, such consultations are wholly unofficial, and Dr. Ray's establishment, therefore, would seem at present to stand alone and to furnish, with its skilful advisory staff of Drs. Mauran and Miller, an example to be followed.

So far these remarks have been based upon my own personal observation of the needs and advantages of the measure I have proposed. I am able to go farther than this, however, and to give corroborative evidence from superintendents themselves.

In a report recently rendered to the Legislature of Massachusetts, the views of the writer as one of the State Commissioners in

Insanity were embodied, he fully recognizing, however, and admitting the fact that the appointment of boards of medical consultation, as a part of the internal management of hospitals, should devolve upon their boards of trustees, and in no way be controlled by the State. The various opinions and recommendations presented in the report alluded to were very properly submitted to the Superintendents of the several State asylums by the Legislative Committee to which it had been referred, and almost without exception they were cordially endorsed. With respect to the propriety of appointing consulting physicians to the hospitals there was not a dissenting voice; Drs. Tyler, of the McLean Asylum, Walker, of that at South Boston, and Choate, of the Taunton Hospital, acknowledging that they had each felt the need of such assistance, and would gladly avail themselves of it were it afforded them, while Dr. Ray, of Providence, who alone could speak from personal experience of its advantages, gave the Committee to understand that he considered his Board as at once comfort, relief, and safeguard. Such would probably be found to be the unanimous opinion of gentlemen engaged in this most responsible specialty.

I have now presented the subject only in its relations to patient and superintendent, and have endeavored to show the advantages and necessity, alike to both, of the measure proposed. I might well cease here, confident that my remarks have been sufficiently conclusive. The subject is no less important, however, to the community at large, in its relations to obstetric practice and obstetric jurisprudence.

Obstetric practice, as I have already hinted, covers legitimately the greater number of cases of female insanity, but it is to hospitals for the insane that the profession must necessarily send many of these patients, and it is to hospitals for the insane that we must therefore look for the most effectual trial of rational methods of treatment, and from them trust for examples of successful cure. For this success they have already, with the single exception alluded to, every possible adjunct: seclusion of their patients from exciting causes; their absolute control as to diet, habits, and whole detail of life; the possibility, so far as skilled attendance is concerned, of carrying out any desired plan of treatment. Were such endorsed by men experienced in similar methods as applied in everyday practice, the superintendent's responsibilities, doubts and risks would all be lightened, and the measures indicated be readily

enough pursued. Before long there would be a mass of digested observations and medical reports issuing from these very hospitals, which would be of immense value to the profession in civil life.

I have referred, and I trust it will not be thought with disrespect, to the tendencies at asylums, in the search for cerebral lesion, to ignore all others. I could relate many instances corroborative of this fact, but it is unnecessary. The very nature of mental disturbance would of itself be sufficient to explain it, did we not have additional reason in the position in which I have shown hospital officers to stand in relation to their cases of insane women. It is evident in the very details of asylum autopsies as compared with those at general hospitals, in the statements of appearances found, and in the silence upon points not supposed essential. I would not imply that there are not most faithful and thorough pathologists among psychologists—a combination, of which Dr. Workman, of Toronto, is by far the most excellent example with whom I am personally acquainted; nor do I believe there are many superintendents in this country who sympathize with their other Canadian representative, Dr. Douglass, of the Lower Province, whose assertion to me of contemptuous disbelief in the need or advantage of autopsies of the insane was only additional proof, had such been needed, that his Government Asylum at Beauport, near Quebec, however fair in outside seeming, is based on an erroneous view of management; that it is conducted for private rather than for public good, and, by comparison with that of Canada West, that it should be abated as an error and a nuisance by Parliament. This is no digression. The topic, both personal and theoretical, is one intimately related to that we have been considering, and I shall discuss it more fully upon another occasion. When autopsies of insane females shall have become more frequent and more carefully studied, the importance of the doctrines now urged will become the more apparent.

I have intimated that the appointment of medical advisers to insane hospitals would be of advantage to obstetric jurisprudence.

We are all familiar with those difficult cases of supposed or alleged insanity in females that from time to time make their appearance in our courts of justice, on writs of *habeas corpus* or otherwise, from asylums, puzzling counsel, medical experts, and judge. Such cases are common enough in private practice, and are found generally amenable to treatment. There is no reason that they should still be allowed to serve as excitants of public scandal,

or to bring discredit upon hospital management, or to subject their officers to suspicion as venal.

There is a vast field above and beyond all this, which many writers have approached, none more boldly than has just lately Dr. Ray[1]—important beyond all estimate in its jurisprudential relations, but which has hardly as yet been entered, certainly not to any extent, from the quarter in which we are now standing. I refer to the legal and moral responsibilities of women, whether maniacal or but partially affected; a matter of infinite interest, of infinite practical importance, I can now but allude to it. It is another proof to us of what may be the results, scientific and effective, from insane asylums when they shall have been made what they may more fully become, hospitals for research, for rational experiment, and for cure.

In accordance with the arguments now submitted, I would offer the following resolutions, which I trust the Association may unanimously see reason, in its wisdom, to adopt and to render effective:—

Resolved, That in the opinion of the American Medical Association it is expedient that there should be attached to every public hospital for the insane, one or more consulting physicians, who may be consulted at the discretion of the superintendent; such measure being alike for the interest of the hospital, its medical officers and its patients.

Resolved, That a copy of the above resolution be transmitted to the Board of Trustees of each of our public hospitals for the insane; and also to the Secretary of the Association of American Superintendents, with the request that it may be endorsed by that body, and the action proposed be urged upon the respective boards with which its members are officially connected.

The above paper having been read before the Section on Obstetrics, and warmly approved by many of its members, the resolutions appended were referred to the Association at large, and were endorsed by a unanimous vote.

[1] Treatise on Mental Hygiene; Report of Butler Hospital for 1864.

REPORT OF SECTION

ON

Materia Medica and Chemistry.

REPORT OF SECTION

ON

MATERIA MEDICA AND CHEMISTRY.

On motion, Dr. J. H. Griscom, of New York, was selected to act as President, and Dr. Corrie, of New York, as Secretary.

Communications from Dr. Squibb, of New York, on *Adulteration of Drugs*, and from Dr. D. J. Macgowan, on *Cultivation of the Cinchona Plant*, were presented, and, on motion, referred to the Association with a recommendation that they be published with the *Transactions*.

On motion, adjourned.

REMARKS

UPON THE

PRACTICAL WORKING OF THE U. S. DRUG LAW.

BY

EDWARD R. SQUIBB, M. D.,
OF BROOKLYN, N. Y.

REPORT OF COMMITTEE.

TO THE AMERICAN MEDICAL ASSOCIATION:—

At the annual meeting of the Association in 1860, a committee consisting of Drs. Joseph Carson, of Philadelphia, Henry J. Bowditch, of Boston, and E. R. Squibb, of Brooklyn, was appointed to report upon the "Practical Working of the U.S. Law to prevent the Importation of Adulterated and Spurious Drugs and Medicines."

At the next annual meeting of the Association in 1863, when the report was due, it became necessary to ask that the Committee be excused, in consequence of pressing occupations, and it was excused, but reappointed to report in 1864.

As the time for the present meeting approached, an attempt was made to prepare a report. It soon became evident, however, that the Committee, separated as its members were, could not, in the limited time then remaining, bring their ideas upon the subject into proper accordance, and it is therefore obliged to state to the Association that it has no report to offer.

And the Committee respectfully begs to be finally discharged from the duty.

Signed,

JOSEPH CARSON.
HENRY J. BOWDITCH.
E. R. SQUIBB, Chairman.

May 30, 1864.

REMARKS UPON THE PRACTICAL WORKING OF THE U. S. DRUG LAW.

THE following paper was prepared in a rough draft by the writer, as the chairman of a special committee appointed by this Association in 1860, and reappointed in 1863, to report upon the practical working of the U. S. law "To prevent the importation of adulterated and spurious drugs and medicines."

The preparation of the paper was improperly delayed until the last month, and when submitted to the other members of the Committee, was found not to be in accordance with their views on the subject. The procrastination of the Chairman had then so narrowed the time that a proper interchange of views between the members of the Committee, separated as they were, could not be had; neither was there sufficient time left for either of the other members to prepare a report if so disposed.

Under these circumstances the writer decided to offer the materials which he had collected and arranged, as a volunteer paper; and, should the Association accept it as such, it must be with the distinct understanding that the other members of the Committee upon this subject are not responsible in any degree for any part of it, but, on the other hand, that they both objected to various parts of it as being inaccurate or improper, or without their knowledge of the truthfulness of the statements made.

A few prominent members of the pharmaceutical profession of New York City[1] and the New York College of Pharmacy, aided first by a few members of the medical profession of New York, and

[1] The movement which finally resulted in the passage of this law, originated practically in the New York College of Pharmacy, and among the members of this body who were most active, energetic and successful, stand the names, first, of Mr. John Milhau, and, scarcely less prominent, those of Messrs. George D. Coggeshall and C. Adamson. And this body was very materially aided and seconded by Dr. M. J. Bailey, then an examiner of drugs, etc., in the New York Custom House.

afterward by the medical profession generally and this Association, with much labor and difficulty, and despite the active opposition of the public press, obtained an act of Congress, approved June 26th, 1848, "To prevent the importation of adulterated and spurious drugs and medicines."

This wise and beneficent law, commonly known as the U. S. Drug Law, went at once into operation, and as experience in its application was obtained, a systematic plan of execution was matured and put in force. Authoritative standards of quality were obtained for all the more important drugs, and were established by the Treasury Department for the guidance of the special examiners, and an oath of office was required of these officers to insure the faithful performance of the duties. All the regulations, explanations, and standards, which had been adopted up to that time, are found in the volume of "Regulations under the Revenue Laws, 1857," published by the Treasury Department in that year.

In fixing the standards of quality for most of the important drugs, a liberal margin was allowed to importers below the strict requirements of the Pharmacopœia and other authorities, in order that the law might not bear too rigidly upon the drug market. For instance, cinchona barks, by whatever title, were admitted when affording 1 per cent. of quinia, or 2 per cent. of *all* the natural alkaloids taken together, whilst really good medicinal cinchona barks should yield a larger percentage than this of the two prominently useful crystallizable alkaloids, quinia and cinchonia. Again, jalap was admitted when it contained not less than 11 per cent. of resin of jalap, whilst the average yield when the drug is only of fair quality is above 12 per cent., and when of good quality often over 14 per cent. Scammony was admitted when it contained not less than 70 per cent. of resin of scammony, but good scammony never contains less than 75 per cent. and often contains 80. Senna was admitted to entry only when it afforded 28 per cent. or more of soluble matter, whilst that of fair quality rarely yields less than 33 per cent. All parcels of drugs which did not come up to these standards were to be sent out of the country or destroyed.

The above examples are selected from the list of drugs for which standards were adopted, because they are very largely imported, and their quality easily determined with great practical accuracy; and because in a paper like this, as in legal proceedings, it is best to base the evidence of truth upon a few examples in relation to

which definite statements can be made, and easily proved at any time.

For some time after the passage of the law, numerous instances of rejection of most of the common drugs were heard of, and these continued some time after the operation of the law had made it known at the sources from whence these foreign drugs come. Inferior foreign drugs, however, were never absent from the market at any time, and the effect of the law seemed rather that of increasing the proportion and the demand for good drugs, than of excluding bad ones. The bare fact of the existence of such a law, and the promulgation of its standards, tests, and penalties, was naturally of great service to the medical interests of the drug market, and when to these was added the effect of numerous rejections, the value of the law could not remain doubtful.

A little later in the history of its application, however, glaring instances of maladministration appeared to become more numerous, and political party influences took possession of the offices under the law, so that by the year 1860, when the Association's committee was first appointed, abundant evidence could be adduced to show that the law was rarely administered at all, and that its value to the medical profession consisted mainly in its existence upon the statute book. The evidences of this want of administration from about 1854–5 to the present time are as follows:—

Cinchona barks, so called, could always be found in abundance at prices which, without examination, would preclude the possibility of their containing any available proportion of any useful alkaloids; whilst barks under the same name, but commanding far better prices, have been frequently examined within this period of ten years, and found far below the legal standard. Indeed, such barks, whenever purchased outside of certain narrow commercial channels to which their cost more than their intrinsic medicinal value confines them, are very rarely met with of standard quality, whilst the general market is always abundantly supplied by importation, with barks of little or no medicinal value.

Inferior, damaged and spurious jalap has been repeatedly seen in the general market throughout the whole period of ten years; and in one instance a lot of true jalap, in quantity large enough to supply the legitimate demands for the drug in a city like New York for a year or two, from which the resin had been nearly all extracted before importation, was passed through the custom-house, sold in the market, and powdered for medicinal use.

Scammony has been repeatedly met with during the period above mentioned containing from 28 to 48 per cent. of the resin of scammony, less frequently from 55 to 60 per cent., and occasionally as low as 16 to 20 per cent., whilst the law requires 70 per cent. at least, and the examiner who passes it is sworn to enforce the law.

Senna has been steadily falling off in general quality for many years, and it has been long difficult to find an original package which comes squarely up to the standard of quality, whilst most of that met with could, by the rejection of 10 to 55 per cent. of sticks, stones, and dirt, be brought up to the standard.

Such evidences as these of the maladministration of this law, are not alone to be found in the possession of the writer, who, in the course of ten years' experience in one of the largest drug markets of the world, might easily have picked up exceptional cases of this kind even under a far better administration of the law; but they are now, and have been, common in the market and are always easily accessible, so that there never has been a time in the history of medicine in this country when the benefits to be expected from such a law were more needed, nor when the law itself was more effectually dead through lack of proper administration.

The principal fault appears to lie in the officers appointed to execute the law, and the whole responsibility of this fault rests upon the Secretary of the Treasury who makes the appointments. It appears to matter little what particular party is in power, as the result has been the same in all.

The last Secretary of the Treasury appointed a special examiner of drugs in the New York custom-house whose administration of the law exhibited no qualifications or fitness for the office whatever; and the effects of the law upon the drug market during that administration render it probable that the appointment was made, as was asserted at the time, solely as a reward for political services rendered during the canvass for the presidential election.

The present Secretary of the Treasury made a very singular appointment, which has yielded no better results, and under circumstances which deserve to be known to this Association.

Soon after the present Administration came into office, and in anticipation of the changes that were made in the custom-house, the entire medical and pharmaceutical organizations of the State of New York moved harmoniously upon this subject, through a joint committee of five societies headed by the Medical Society

of the State, and embracing the New York Academy of Medicine, and the New York College of Pharmacy. After due deliberation and discussion this large joint committee decided upon petitioning the President of the United States and the Secretary of the Treasury to have the candidates for these important offices examined, and to appoint only such as might be found qualified to undertake the duties. The Medical Boards of examination of the army and navy were suggested as the best available means for ascertaining the qualifications needed, as being easily accessible for the purpose, and entirely under government control. This plan seemed so much better than the old one, and so easy of application, and seemed to offer to the appointing power, beset as it was by numerous candidates, so easy a mode of fulfilling the requirement of the law "to appoint suitably qualified persons," that it met with very general and hearty approval, not only in the Committee but in the profession, and even among the better class of importers of drugs in this locality.

These petitions were as follows:—

TO HIS EXCELLENCY ABRAHAM LINCOLN,

PRESIDENT OF THE UNITED STATES.

The undersigned, presiding officers of the New York State Medical Society, New York County Medical Society, King's County Medical Society, New York Academy of Medicine, and New York College of Pharmacy, beg leave to represent—

That by discussion in these several bodies, by committees of conference, and finally by a joint committee, these bodies are unanimously agreed to solicit your attention to the proper execution of the law known as the U. S. Drug Law, passed by Congress in 1848, "To prevent the importation of adulterated and spurious drugs and medicines."

This law, if thoroughly executed, is a great public safeguard and benefit; if administered through venality, incompetency, or carelessness, it becomes mischievous, and may increase the evils it aims to correct. Its execution in accordance with its true intent and spirit demands the highest order of integrity, and a high standard of scientific and practical knowledge of medicine, pharmacy, and chemistry as applied to the quality and value of drugs and chemicals. In view therefore of the importance of selecting officers thus properly qualified, and the difficulty of deciding as to these qualifications without a critical examination, we respectfully

recommend: 1st. That the candidates be graduates of a regular medical college, or a college of pharmacy; and 2d. The reference of all candidates to the Medical Boards of Examination of the army or navy, whose competency for such duty is well established, who shall report their decisions or selections to the appointing power through their respective departments. It will be remembered that these Boards meet for the examination of candidates for the Medical Corps of the Army and Navy every year, generally in March, and always in some of the large ports of entry.

We are, very respectfully,
Your obedient servants.

TO THE HONORABLE SALMON P. CHASE,

SECRETARY OF THE TREASURY OF THE UNITED STATES.

The undersigned representatives of the medical and public interests of their respective localities and organizations, respectfully ask from your administration of the Treasury Department, a more thorough execution of the law passed by Congress in 1848, "To prevent the importation of adulterated and spurious drugs and medicines."

When properly executed, this law is a great public benefit; but if administered through venality, incompetency, or carelessness, it becomes mischievous, and may increase the evils it aims to correct. Its efficient operation meets with strong opposition from the pecuniary interests of some influential commercial classes in each port where it is applied, and the offices under the law are sometimes sought for through other interests than its true aim and intention.

The value of this law to the Medical and Pharmaceutical professions, and to the public, depends almost entirely upon the officers appointed to carry it into effect. A proper and judicious execution of the intent and spirit of its provisions demands officers whose first requisite is the highest order of integrity. Next, such officers require an amount of scientific and practical knowledge of medicine, pharmacy, and chemistry, as applied to the quality and value of drugs and chemicals that is rarely to be met with, and is never found without the exercise of care and discrimination.

In view of these requisites and the difficulties they must present to the appointing power, in making selections from the numerous candidates always presented, we respectfully suggest that the Medical Boards of Examination of the Army or Navy would be

competent and easily accessible to decide by critical examination, upon the character and competency of persons who may be candidates for these important offices, thus materially aiding the Secretary of the Treasury in the duty imposed upon him by the law, of appointing "suitably qualified persons as special examiners of drugs, medicines, chemicals, etc." These Boards of Examination are constituted by the general government, of medical officers of the Army and Navy, and meet annually for the examination of candidates for the Medical Corps of the Army and Navy, generally in March, and always in some of the large ports of entry. They are composed of practical men of high scientific attainments, who are fully committed to the true interests of the general government, and of the law itself—who are removed as far as possible beyond the reach of any local or collateral interests—and who could, through their respective departments, be made easily available for this important advisory duty, without any change in the law, or any additional expense to the government. If our recommendation be adopted, it would only be necessary to refer all candidates directly to these Boards, and to appoint those only whom the Boards might find to be "suitably qualified" for the offices.

We are, sir, very respectfully,
Your obedient servants.

When prepared, these were duly signed and attested by the presiding officers of all the societies—by the staffs of many of the largest hospitals—by many of the best pharmaceutists and largest drug importing houses. Other copies of the same petitions were numerously signed and sent in from Boston, Baltimore, and Louisville, and a petition somewhat altered in plan was sent from Philadelphia. Thus all the important ports of entry for drugs, except New Orleans and San Francisco, were fully represented in the movement.

The official petitions from the New York societies were sent to Washington by a special messenger who was a member of the Joint Committee, to be presented to the President and Secretary of the Treasury. Although upon such an errand, access could not be obtained to either of these officers; the Assistant Secretary of the Treasury was seen, and the petitions were placed in his hands with the necessary explanations concerning them. The messenger was told that the Secretary, in making the appointments, would be guided

only by fitness for the offices, and that the Committee might rest assured that the true interests at stake were well known to the Treasury Department, and would be protected. Some months after this, and after the Army and Navy Boards had been in session at New York and Philadelphia, the appointments were made without any regard for qualifications for the offices that could be ascertained at the time, or which have been exhibited since in the execution of the important duties, for there certainly never has been a time since the passage of the law when more bad foreign drugs have been passed through the custom-houses than during the past two or three years.

As it is not the object of the Association in making an inquiry into the working of this law, nor of the writer, in endeavoring to answer this inquiry, to detail the evidences of personal disqualification in the special officers appointed, that may have been presented in the course of the investigation, all such evidences are withheld from publication, though accessible for all proper legitimate purposes.

For the entire history of this movement, as reported to the New York State Medical Society, see *Transactions of the Medical Society of the State of New York* for 1862, p. 423 *et seq.*

To sum up the conclusions arrived at in a few words, the writer emphatically asserts that this law "to prevent the importation of adulterated and spurious drugs and medicines" has not prevented, and does not now prevent, such importations, and that the principal reasons why it does not to a much greater extent fulfil its important objects are, first, that the Secretary of the Treasury is the first to break down the law by not obeying its injunction to appoint "suitably qualified persons" to fill the offices under it; and, secondly, because the incumbents of the more important of these offices at least, forswear themselves in making oath "to diligently and faithfully perform the duties of said office as prescribed by the act to prevent the importation of adulterated and spurious drugs and medicines."

The time again draws near when these offices may possibly be changed, and the Association will judge whether, in view of past experience, it be worth while to take any action in the matter. The profession appears to be rapidly, and doubtless justly, losing much of the former reliance upon drugs, and whether this loss of confidence be due in greater or in lesser part to the bad quality of the materia medica in general use, there appears some danger that

the equally pernicious opposite extreme of absolute scepticism may be as rapidly reached. One of the penalties which the operation of natural laws imposes upon undue vigor and over-stimulated activity is that of hastening from one extreme to another, and of holding rarely, and but for a short time, that middle ground in whose genial soil truth and knowledge are best cultivated.

Brooklyn, June 1, 1864.

NATURALIZATION

OF

CINCHONA ON THE EASTERN CONTINENT.

BY

J. MACGOWAN, M.D.

NATURALIZATION OF CINCHONA ON THE EASTERN CONTINENT.

SIR: The enlarged views which the American Medical Association has taken of questions pertaining to the medical sciences, and the comprehensiveness of its designation—implying that its field includes the whole western hemisphere—seem to justify an American medical traveller in soliciting the co-operation of the Association to extend the cultivation of the greatest gift of the New World to the Materia Medica—the Cinchona-tree.

You are aware that the enormous drain upon the cinchona forests of New Granada, Ecuador, Peru, and Bolivia, and the reckless system pursued by the Cascarilleros, have wellnigh exhausted the supply. Whole regions, formerly rich in bark, are now stripped. With a constantly increasing demand for the precious febrifuge, the sources of supply are rapidly diminishing. You are aware, also, that, at the instigation of the medical men of Holland, the government of the Netherlands undertook to acclimatize cinchona plants in Java, and that subsequently the British East India Company, appreciating the importance of the subject, instituted experiments on the Neilgherry Hills, in Southern India. While in that part of the world, recently, I found that these attempts to introduce American plants into the Orient had demonstrated the practicability of the enterprise, insomuch that we are encouraged to hope that, when the South American supply becomes exhausted, the eastern hemisphere will furnish us with the means of obtaining quinia. These European experiments are highly suggestive to the cultivators of medical science throughout America.

Although the South American governments have hitherto failed to comply with the requests presented from time to time by scientific men to enact laws for the protection of cinchona trees, it is probable that they will ere long be induced, from economical con-

siderations, to legislate on the subject; yet it is desirable that the area of cinchona cultivation should be extended to the utmost, and, as there are new regions into which the plant might be successfully introduced, I beg to submit that the American Medical Association should call the attention of various American governments to the matter, particularly that of Hayti, the climate and soil of which seem admirably adapted to cinchona culture, and the government of which is now in the hands of enlightened men. If a representation of the case were made to that government through its minister, Colonel Ernest Roumain (residing in New York), by a committee of the Association, showing that economic as well as cosmopolitan humane considerations favor the experiment, there is every reason to believe that, coming from such a body, immediate steps would be taken to promote the object.

Most truly, yours,

D. J. MACGOWAN.

To Professor JOSEPH M. SMITH, M. D.

MARTINDALE BARRACKS,
WASHINGTON, D. C., June 6, 1864.

REPORT OF SECTION

ON

Meteorology, Medical Topography, Epidemic Diseases, and Medical Jurisprudence and Hygiene.

REPORT OF SECTION

ON

METEOROLOGY, MEDICAL TOPOGRAPHY, EPIDEMIC DISEASES, AND MEDICAL JURISPRUDENCE AND HYGIENE.

Organized by the election of Dr. S. W. BUTLER, of Pennsylvania, President, and Dr. A. N. BELL, of Brooklyn, as Secretary.

Dr. HIBBERD, of Indiana, from the Committee on *Compulsory Vaccination*, submitted a report with certain resolutions attached, which, after amendment, were adopted, and the report referred to the Association for publication.

Dr. ANDREWS, of Illinois, from the Committee on Military Hygiene, submitted a report on *Hygiene of Military Hospitals*, which, on motion, was referred to the Association for publication.

Dr. JOHN H. GRISCOM, of New York, presented a paper on the *Physiological and Dietetical Properties of Phosphorus*, which was, on motion, referred to the Association for publication.

Dr. RAMSAY submitted a *Table of Sanitary Statistics, etc.*, which, on motion, was referred to the Association for publication.

Adjourned.

A. N. BELL, Secretary.

SECTION MEETING.—THIRD DAY, P. M. SESSION.

Voluntary report on *Some of the Causes Promoting the Extinction of the Aborigines of America*, by JONATHAN KNEELAND, M. D., South Onondaga, N. Y., was, on motion, referred back to the Association with the recommendation that it be sent to the Committee on Publication for publication in the *Transactions*.

Special Committee report on *Milk Sickness*, submitted by ROBERT THOMPSON, M. D., of Ohio, Chairman, was, on motion, referred for publication.

Special Committee report on the *Medical Topography and Epidemic Diseases of Rhode Island,* submitted by CHARLES W. PARSONS, M. D., Providence, Rhode Island, was, on motion, referred for publication.

Adjourned.

A. N. BELL, Secretary.

REPORT

ON

COMPULSORY VACCINATION.

BY

JAMES F. HIBBERD,

CHAIRMAN.

REPORT ON COMPULSORY VACCINATION.

The Committee appointed at the last meeting of the Association to inquire into the expediency of causing every individual in the United States to be vaccinated, and, if found expedient, to submit a plan for that purpose, reports: That it has come to the conclusion that general compulsory vaccination in this country is, at this time, impracticable.

Starting out with the conviction that vaccination can be accomplished so that the subject of it shall be absolutely free from all liability to smallpox, your Committee entertained the idea that compulsory vaccination of all the inhabitants of the States of this Union could be enforced through governmental authority immediately, but having corresponded with various gentlemen in different parts of the country, and given the subject the most serious consideration within its capacity, your Committee feels compelled to abandon its original opinion, and adopt that which has just been announced.

Perhaps most physicians, when the affair is first presented to their minds, are of the opinion that general compulsory vaccination could be carried into successful operation at once; there is no physician, so far as known to your Committee, who has given investigating attention to the subject, that does not arrive at a different conclusion.

Partial compulsory vaccination is attainable now, is already in operation, in fact, in many of the States, and by proper effort of this Association can be gradually extended, so that at no very distant day, every one can be required to come under the protecting wing of vaccination.

The barrier to present general compulsory vaccination is not intrinsic to the affair, but extrinsic and with the people themselves, and consists, principally, of two leading difficulties: first, a want of

knowledge of the facility, safety, and value of vaccination; and secondly, forced activity, even in the most noble field of self-hygiene, is repugnant to the genius of the American people.

The second of these propositions is a seeming, rather than a real, impediment to general compulsory vaccination, and whatever character it has rests almost wholly upon the fact contained in the first proposition.

It is very true that the American people will not be driven blindly to the performance of any act dictated to them by some authority assuming a power not emanating from, or conferred by, their sovereign will, for they are justly jealous of their right to rule, and reign over themselves; but give them light and knowledge, convince their judgments that universal vaccination will eradicate smallpox from among them, and leave no other evil in its stead, and no people on earth will so quickly, or so effectually, put into operation, and yield obedience to ordinances that will accomplish these results.

Among civilized nations ours is the slowest to yield to anything like dictation, and the quickest to adopt, and make operative, any measure of the utility of which the masses become convinced.

This is the genius of the American people, and it is something to cherish and be proud of, for it is part and parcel of the birthright principle of self-government, to maintain which the nation is now pouring out rivers of blood, sacrificing hundreds of millions of wealth, and immolating tens of thousands of her hero sons upon the altar of Mars.

To guide this genius of our people to the enactment of ways and means making general vaccination a legal necessity, we have but to convince them that the affair is just and expedient. Physicians are the only class of citizens competent to convince of the justness and expediency of general vaccination; and the American Medical Association is the only organization among physicians competent to initiate, control, and carry on measures to consummate this end: an end so great, so grand, so pregnant with human weal, that nothing at present within the efforts of the Association is at all comparable to it in promised good. The responsibility, therefore, of the Association cannot easily be overstated, and your Committee indulge the hope that, fully impressed with the importance and magnitude of the undertaking, the Association will bring to its consideration that seriousness, determination and perseverance, that shall overbear or outflank all opposition and result in triumphant success.

With regard to the first proposition, it is not complimentary to us that at the end of two-thirds of a century, after the immortal Jenner had published to the world full instructions for the prevention of so loathsome, so dangerous, and so dreaded a disease as the smallpox, there should still be such a lack of knowledge among the populace in regard to the influence of vaccination as the protecting agent.

Perhaps, however, we should not marvel at this ignorance among the multitude, while we find such a diversity of opinion among professional men touching the same point. Dr. A. asserts that a child once vaccinated retains an immunity against smallpox throughout life; Dr. B. is of the opinion that those only who bear a cicatrix with certain described characteristics have such security; Dr. C. declares that the protective influence of vaccination lasts just seven years; Dr. D. believes that in some persons a single vaccination is protective through life, in others it is protective for a shorter period, and in a third class it is not protective at all; and so eminent an author as Dr. Copland expresses doubts whether we should ever rely upon vaccination, and suggests the propriety of supplanting it by a recurrence to the inoculation of proper smallpox. These opinions are not held as unsettled points and retained for professional discussion, but are dogmatically promulgated among the people, and are made the foundation for professional advice and practical operations; and as a physician is, in many an instance, an oracle in medical matters within the circle of his patrons, we cannot wonder that public opinion has no settled conclusion in relation to the value or the necessity of vaccination.

Another very serious obstacle in the way of general vaccination is the wide-spread popular belief that syphilis, scrofula, and other physical impurities of one system may be carried into other systems by vaccination, and contaminate them, and that the most vigilant care on the part of the most cultivated vaccinator is not always adequate to the avoidance of this disaster; much less, therefore, is it safe to trust the reckless or the careless operator, and he cannot always be known until proclaimed by the irreparable mischief he has done.

It is probably true that syphilis, and possibly true that other diseases may have been conveyed from one person to another through the medium of impure virus, but the error in the public mind lies in the supposed fact that it is a common occurrence, and cannot be avoided by ordinary care.

Your Committee believes it the privilege of this Association to set forth to the people just what vaccination has done for the civilized world, what it is now doing, and what it is capable of accomplishing in the future for the inhabitants of this country, if they will but take it in hand and cultivate it to the extent that scientific knowledge admits.

The original intention of your Committee embraced the determination to present, as a material part of this report, such historical statistics as would show the wide-spread and fatal ravages of smallpox before the time of Jenner, as compared with the moderate extent and mild character of the disease since the advent of vaccination; and also such statistics, facts, and arguments in relation to vaccination, that if sanctioned and promulged by this Association, would be of material assistance in assuring the people that vaccination can be so accomplished that smallpox shall become extinct among us, without the least danger of contaminating our bodies with any other virus by the process. But other duties, pressing and paramount, forbade the execution of the task, and your Committee can now only express the hope that abler and less encumbered hands will undertake the labor and perform the service in a more forcible and acceptable manner than could have been done by it if no trammelling circumstances had forbidden. Such a compilation would be serviceable not only to present to the public as a means of preparing it for efficient, because intelligent, action, but also as a standard to which the vast body of the profession might refer as containing all that is valuable respecting vaccination.

A great majority of men engaged in practical medicine pay very little attention to the progress of that branch of medical science which embraces vaccination, but their opinion in the premises, crude and imperfect as it may be, is the guide of their patrons, with whom their influence outweighs every other authority. Any plan intended to bring the people to demand general vaccination must include within its purview the cultivation and propitiation of these general practitioners. No system the Association can devise will be successful if it runs counter to their sentiment and feeling; any reasonable measure having their hearty co-operation will be comparatively facile.

What, then, in view of all the circumstances, is the duty of the Association in relation to general compulsory vaccination?

To properly answer this question we must keep steadily before

us the leading facts that the end aimed at is the establishment of a great sanitary good for the benefit of the people, to be enforced upon the careless and unwilling few by statutory obligation; that the only power to establish and maintain this measure lies dormant in the people themselves; and that the sole stimulant available for arousing this power into activity is to convince them of the value and the facility of the affair, and the necessity for its adoption.

There are two chief levers to move the people in this behalf that the Association should seize and skilfully apply; first, the general practitioners of medicine, as already herein before mentioned; and secondly, the Press.

An American gentleman of great practical good sense is reported to have said that "Newspapers are the monarchs of the age." Let us, then, enlist these monarchs in the cause we advocate. Doubtlessly, with proper effort, the whole catalogue of daily, weekly, monthly, and quarterly periodicals could be interested in the good work, for it commends itself to their warmest regards, whatever their leading features may be, political, literary, scientific, or religious. The humanity of the purpose for which their aid is invoked; the unselfish design of the party seeking their assistance; and the certainty of doing good to their patrons and supporters, without the risk of doing harm or giving offence, would be sufficient to subsidize every press in the land.

A key to the importance of this appliance in maturing the work under consideration may be had by imagining the influence that would be exerted on a wide circle of readers, by an article on vaccination written by Edward Everett, and published in the *New York Weekly Ledger*.

For the successful application of these means there must be a perfect system and thorough organization; an active and responsible head, with intelligent and efficient subordinates. Perhaps the better plan would be for this Association to appoint one or more persons to take charge, under its direction and control, of the whole affair. For the convenience of a name let us call this head the Central Committee. Then there should be a committee appointed in each State to supervise the affair in the State, which may be called the State Committee. These State committees should be subordinate, auxiliary, and advisory to the Central Committee, and should perform their work in a uniform method to be dictated by the Central Committee.

It is unnecessary to give further details of such a plan in this connection, as the foregoing will suffice for action on the part of the Association, to determine whether the proposition meets its approbation.

All of which is respectfully submitted,

JAMES F. HIBBERD, Chairman.
WILSON JEWELL,
JOHN H. GRISCOM.

REPORT

OF THE

COMMITTEE ON MILITARY HYGIENE.

BY

E. ANDREWS, M. D.

REPORT OF THE COMMITTEE ON MILITARY HYGIENE.

Your Committee find that the present war has furnished such a vast mass of facts for consideration upon the topic of military hygiene, that no human industry will suffice to digest it into a complete report, in the space of a single year. We have therefore determined to confine our attention to only one subdivision of the subject, viz:—

THE EFFECTS OF THE AIR OF OVERCROWDED HOSPITALS.

There are four principal sources of contamination affecting the air in hospital wards.

1st. The respiration.

2d. The perspiration.

3d. The effluvia and suppuration of wounds.

4th. The various discharges and excretions of the body.

From all these sources the air of a ward filled with wounded men is rendered unfit for use with astonishing rapidity.

If we take the combined results of physiological experiment, and of our own observation, we shall find the rate of contamination in a ward of fifty wounded men to be about as follows.

Men respire about 350 cubic feet of air each in 24 hours, consequently 50 men consume 17,500 cubic feet. The air thus breathed is unfit for any further use. It is deprived of a part of its oxygen, is loaded with carbonic acid, and, what is worse than either, the moisture exhaled with the breath is loaded with organic matter, in such a state as to favor rapid putrefaction where the air is at all confined. Strictly speaking none of this air should enter the lungs a second time, but as it is difficult to prevent this absolutely, we may assume that it should be mixed with at least ten times its

volume of pure air, to render it at all safe for respiratory purposes. Assuming, therefore, that 50 patients respire, as above shown, 17,500 cubic feet of air in 24 hours, we may assert that they render unfit for use about ten times that amount by mixture—that is, 175,000 cubic feet. But the organic and aqueous excretions of the skin are equally deadly, and about twice the amount of those of the respiratory excretion. They consist of carbonic acid, sulphuretted hydrogen, and various organic materials, including exfoliated scales of cuticle diffused as putrefying dust in the air. The amount being twice that of the organic excretions of the lungs, it is fair to assume that it renders twice the amount of air unsuitable for use, that is, 350,000 cubic feet in 24 hours. It is a matter of experience, that the effluvia of recent gunshot wounds will contaminate the air of a close ward as fast as the action of the skin and of the lungs combined. We may say safely, therefore, that 50 wounded men in the suppurative stage will spoil not less than 525,000 cubic feet per diem, by the stench of the wounds and pus alone. Besides these sources of impurity, there is a large addition from the occasional evacuations of urine and feces of patients unable to walk to the closet, the dribbling of urine from patients wounded in the bladder or unable to retain their urine from other causes, and the expectoration of men injured in the chest. We estimate these influences as spoiling 175,000 cubic feet more.

Footing it all up, the account stands thus:—

Air contaminated by a ward of 50 recently wounded men in 24 hours.

By respiration	175,000 cubic feet
" perspiration, etc.	350,000 " "
" suppuration and gangrene . . .	525,000 " "
" other excretions	125,000 " "
Total	1,175,000 cubic feet.

Now a ward for 50 men usually contains 50,000 cubic feet of air. In the case supposed, therefore, it should be changed not less than 23 times in 24 hours, or about once an hour to render it at all safe. This is a very moderate estimate, for if the air of a hospital is only changed once an hour, it will always indicate danger by the offensive smell of the surgical wards. We think that a change every 20 minutes would be much safer. Yet many large military hospitals are so constructed that the air breathed by many of the patients remains for hours with but little change, and is never for a moment free from the stench of putrid secretions and discharges.

In such circumstances, instrumental tests show that the air is full

of pus-corpuscles floating about as dust, and planting the contagion of erysipelas or hospital gangrene upon every wound and ulcer exposed to it.

EFFECTS OF CONTAMINATED AIR UPON THE PATIENTS.

Patients placed in an overcrowded, or ill ventilated ward, very uniformly come by the third day into a peculiar condition, which has recieved various names, viz., "the Aplastic Diathesis," "the Suppurative Diathesis," "the Erysipelatous Diathesis," etc. etc. The evidences of its approach are the following: 1st. Erysipelas begins to attack a large number of the wounds, and as its constant accompaniment diffusive phlebitis and pyæmia are prevalent. In operative cases, the incisions do not heal readily by first intention, the sutures ulcerate out too early, the edges of wounds show a phagedenic tendency, and weak yellow festers are frequent on the skin at irritated or abraded points. Ligated arteries also give way with frequency, producing secondary hemorrhages in unusual numbers. The wounds made by bullets also give warning of the mischief, by the following characteristic appearances. When a patient with a gunshot wound lies in a current of perfectly pure and fresh air, the surface of the wound clears off by the fifth or sixth day, and presents a clean rosy coat of healthy granulations. In close hospitals, on the contrary, the wounds continue foul, presenting, on the sixth day, a dull whitish yellow coat like a feverish tongue. If the evil continues for a time longer, the patients begin to have hospital gangrene, and numbers of them die in a rather obscure manner without apparently a sufficient cause. These are the circumstances sometimes complained of and wondered at, when "all cases of amputation die," as at certain British hospitals in the Crimean war, and in some of those of our own army during the present contest.

The effects of foul air upon the system are made more clear by contrast with those of pure respiration. Your Committee have had opportunity to observe, and all military surgeons will bear us out in the assertion, that, as a general rule, wounded men treated in the field do much better than those sent to large general hospitals. The regimental surgeon in the field seldom meets traumatic erysipelas, and never sees hospital gangrene. His wounded, lying under trees or open booths, are blown upon freely by the winds, and though they sleep on the hard ground, are wet with the rains, are shaken in ambulances, and fed on "hard tack" and salt bacon, yet

obtain freely their prime necessity, *fresh air*, and make gratifying recoveries from the most desperate injuries. By the sixth day their wounds are all clean, rosy, and granulating; erysipelas and secondary hemorrhage are very rare, and pyæmia, the scourge of hospitals, is almost unknown. The vigorous plasticity and reparative power of their tissues is in magnificent contrast with the feeble, foul, and suppurative diathesis of patients in all *overcrowded or ill ventilated* general hospitals. A few facts selected out of many are sufficient to illustrate these truths. The following quotation is from the report of the Committee on Diathesis for the year 1863:—

"FILTHINESS AND OVERCROWDING OF HOSPITALS, BARRACKS, OR TENEMENTS.

"At the battle of Chickasaw Bayou, near Vicksburg, two of the hospital steamers presented a striking contrast in this very respect. One, the 'City of Memphis,' was extremely large, airy, and well ventilated, while the other, the 'Von Phul,' was comparatively small and close. The boats were stationed along the Yazoo River, in the rear of the line of battle, to receive the wounded. By the chance of war, the greatest carnage occurred in the vicinity of the smaller boat, so that the little 'Von Phul,' with her small, close cabins, received twice the number of patients which the huge 'City of Memphis' did. The fighting continued five days, after which the whole army made a sudden movement by water to capture Arkansas Post. Owing to the rapidity of the movements, there was no time to equalize the numbers by transfer, and the two hospital steamers went off up the river as they were. Here was a fair field of comparison by which to determine the effects of overcrowding. One had 125 patients dispersed through vast and airy cabins, easily ventilated and kept clean. The other had 300 wounded men crammed into a small space, where they could not be kept clean, and where they continually breathed the ammonia and stench from decomposing pus.

"My notes of the cases show the following results on the two boats. By the fifth day the wounds of those upon the large boat began to clean off. The whitish shreds of disorganized tissue, which are always seen in recent gunshot wounds, separated and passed away, leaving a healthy surface covered with rosy granulations. At the same time, all the wounds upon the small boat presented a dull, whitish-yellow aspect, no surface of healthy granula-

tions being anywhere visible. Erysipelas had commenced its ravages, accompanied by phlebitis and pyæmia. Injured arteries seemed to have no plasticity to produce adhesion when tied, and hence secondary hemorrhage became alarmingly frequent. Mortification occurred in some cases with appearances approximating to hospital gangrene. The general vital power of the patients was lowered, and they succumbed in many cases from small and unimportant wounds.

"On the seventh day I was ordered to take charge of the smaller boat. I immediately ordered all the doors and windows to be thrown wide open, and a large portion of the wounded to be carried out and laid in the fresh air of the decks. At the same time the most vigorous efforts were made by Assistant Surgeon Witt, of the Sixty-ninth Indiana, to rectify the condition of the entire boat; by which means we very much alleviated the evils which had been produced. Nevertheless, great mischief had been already done, and by the tenth day the balance sheets of death stood as follows:—

Mortality on the well-ventilated boat	5 per cent.
Mortality on the overcrowded boat	12½ "

"This example does not stand alone. I have observed something analogous to it after every battle that has come under my observation. Wounded men who are kept dispersed in the fresh air of the fields, even though they have been exposed to cold and wet, generally preserve their plasticity, present clean rosy wounds, and recover with vigor and ease; while those who have breathed a confined atmosphere, filled with the effluviæ of decomposing secretions, always show foul, offensive, dull-colored wounds. So striking is the difference in their appearance, that, were a thousand men of each class taken on the sixth day and mingled indiscriminately together, they could be readily selected out again by the appearance of the wounds alone.

"I consider it therefore an established and invariable law of nature, that a full exposure to the atmosphere of an overcrowded and ill-ventilated ward of wounded men will, in five days, produce an aplastic diathesis in every man thus maltreated."

The danger of cabin passage in overcrowded hospital boats is well known to judicious surgeons in the western armies. A field surgeon of eminence, at the siege of Vicksburg, on placing his men upon a hospital boat was once offered the cabin for his patients. He replied without hesitation, "If I am allowed my choice, put my wounded on deck."

After the battles of Fort Donelson and Shiloh, great errors were committed from the natural anxiety both of surgeons and of sanitary agents to shelter the wounded from the storms, it being the rainy season. Hence every hospital boat sent north was loaded to its utmost capacity, and the cabins especially were crammed. As the result, erysipelas generally broke out by the third day with virulence, and by the time the patients reached the northern hospitals, great numbers of lives were sacrificed. Countless facts from civil hospitals also might be adduced to show the difference between fresh and foul air. The following extract from the *Transactions of the New York Academy of Medicine* for 1853, page 173, will serve for a specimen. The writer of the letter is the Hon. James Parker, a distinguished citizen of New Jersey.

LETTER FROM MR. PARKER.

PERTH AMBOY, NEW JERSEY, March 15, 1852.

DR. JOHN H. GRISCOM—

DEAR SIR: Having read your treatise on the *Uses and Abuses of Air*, I send you an account of what occurred in this place some years since, and which proves the efficacy of fresh and pure air, not only in preventing, but curing disease.

In the month of August, 1837, a number of ships with emigrant passengers arrived at Perth Amboy from Liverpool and other ports, on board of some of which ship fever prevailed. There was no hospital, or other accommodations in the town, in which the sick could be placed, and no person could admit them into private dwellings, fearing the infection of the fever. They could not be left on board the ships. An arrangement was made to land the sick passengers, and place them in an open wood, adjacent to a large spring of water, about a mile and a half from the town. Rough shanties, floored with boards, and covered with sails, were erected, and thirty-six patients were taken from on board ship with boats, landed as near to the spring as they could get, and carried in wagons to the encampment (as it was called), under the influence of a hot sun, in the month of August. Of the thirty-six first named, twelve were insensible, in the last stage of fever, and not expected to live twenty-four hours.

The day after landing there was a heavy rain, and the shanties affording no protection with their "sail" roofs, the sick were found the next morning wet, and their bedding, such as it was, drenched with the rain. It was replaced with such articles as could be

collected from the charity of the inhabitants. The number at the encampment was increased by new subjects to the amount of eighty-two in all.

On board the ship, which was cleansed after landing the passengers, *four* of the crew were taken with ship fever, and two of them died. Some of the nurses at the encampment were taken sick, but recovered. Of the whole number of eighty-two passengers removed from the ship, *not one died.* Pure air, good water, and perhaps the rain (though only the first thirty-six were affected by it), seem to have effected the cure.

No report has been made of these circumstances, and I send this from my recollection, and the information derived from the physician, Dr. Charles M. Smith, who still resides here, and to whom I refer you.

Very respectfully,
JAMES PARKER.

At the same time the mortality of patients with this disease in the New York Hospital was 13 per cent.

The following facts respecting the Crimean war have never before been published, and are derived from Dr. C. R. Parke, of Bloomington, Illinois, who was one of the American surgeons who entered the Russian service, and whose high character is sufficient voucher for the truth of his statements. One of the Russian hospitals at Simpheropol was a vast hall forty feet in width by one hundred and fifty feet in length, and was occupied by about one hundred patients. The Russians have a national dread of fresh air, seeming to think that it produces great danger. The ventilation in this pest hole was accomplished only by a small circular opening about four inches in diameter, at the top of each window, of which there were only eight. When the American surgeons were present in the room they had influence enough to cause the windows to be raised, but as soon as they were out of sight the prejudices of the Russian patients caused them to be promptly shut for fear of catching cold. In the abominable stench of this den the sick and wounded were laid and treated. The mortality was terrific, the causes of death being principally hospital gangrene, erysipelas, pyæmia, and typhus fever. In February and March of 1856, there was an average of over ten thousand patients present in Simpheropol, and an average mortality of over 20 per cent. About 140 deaths a day was the usual rate.

Out of 27 American surgeons nearly all were made sick, and nine of them died.

Such being the beneficial effect of pure, and such the deadly power of contaminated air, we are justified in assigning the subject of hospital ventilation a position of first class importance. Compared with pure air, all other restoratives for the sick and wounded are secondary. It is not fruits and jellies, potted meats, and delicate drinks; it is not soft beds, nor even shelter from the storm, which the wounded soldier needs most. Give him fresh air first, and at all hazards, and then the other comforts if possible.

FAULTY CONSTRUCTION AND SELECTION OF HOSPITAL BUILDINGS.

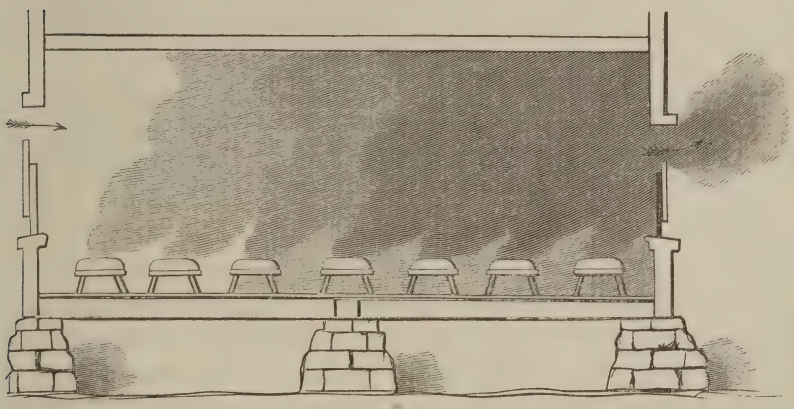
The old hospitals both of this country and Europe are so badly constructed with reference to ventilation that many of them are a positive curse to the community, and a disgrace to the medical profession, the mortality being worse than if the patients were left in the streets. However, knowledge has so far advanced that very few bad hospitals are any longer built by our government for military purposes. Fearful mistakes are still committed, however, by medical directors in selecting buildings already erected. Thus, for instance, when Memphis was captured the chief medical officer chose for a hospital building the Overton House, a vast square hotel built around a central closed court in such a manner that ventilation was an impossibility. Being five or six stories in height, with the corridors all communicating to the grand staircase, the effluvium of one story went up to be breathed over again on the next, and so on with added impurity on every story till it fumed out at the top.

When additional hospitals were required, with an insane hankering after unventilatable buildings, three large blocks of brick stores were taken. These were several stories in height, and the wards were long narrow rooms, 20 or 30 feet wide and about 100 feet in length, and only ventilated at first by end windows, there being none at the sides. Practically the only patients who ever got a breath of pure air were the two who lay next to the windward end of each ward. The air contaminated by them floated on to the next pair of beds, and then to the next, and so on with increasing impurity until it steamed out at the leeward windows. Efforts were made to draw off the foul air by flues, but with so little success that hospital gangrene was by no means prevented. Nothing but

an elaborate system of fan blowers and flues worked by a steam-engine can render such buildings safe.

Similar errors were made in numerous other towns; Memphis is selected only as a specimen. It is a natural but fatal error for thoughtless or ignorant medical directors to choose for general hospitals the largest, finest, and deepest blocks within their reach, ignoring the fact that the difficulty of ventilating the interior increases as the square of the diameter. Deep blocks of stores, and large square hotels are past remedy, and if there is no other choice, it is much better to omit the general hospital entirely, and submit to the inconveniences of a number of small hospitals dispersed among the cottages of the place. The following ground plan and section are introduced to illustrate the difficulty of ventilating a long ward from the end windows. The air comes in pure at the windward extremity of the ward. At the first pair of cots, it re-

No. 1.



Section of a ward ventilated by the means of windows at the ends, showing the accumulation of foul air at one end.

ceives the effluvium of the suppurating wounds, of the perspiration, and of the respiration of the two patients there laid. If for the sake of distinctness we conceive of these impurities as assuming a visible form like a smoke or vapor, we can readily understand the modus operandi, as shown by the shading in the wood cuts.

The air comes in pure at the windward extremity of the ward. The air from the windows is rendered impure, as above stated, at the first pair of cots; passing along the ward lengthwise, it receives increasing contamination at every bed until it arrives at the leeward extremity, where it furnishes the last pair of sufferers with

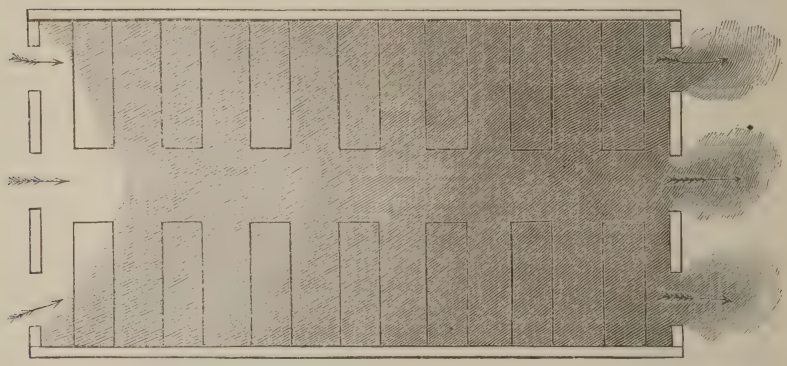
a breath composed of the concentrated putrefaction of all the rest, and then passes out a fuming abomination at the leeward windows.

The shading in the wood cut shows the progress of the impurity.

PROPER MODES OF VENTILATION.

The ideal of perfection in the air supply of a hospital is that every breath which the patient draws shall be absolutely a new and pure one, wholly free from any admixture with previous respirations, or with any other noxious exhalation. This is perfect ventilation, and no hospital is to be approved which does not make a

No. 2.



Plan of a ward ventilated from windows at the ends, showing the accumulation of foul air at the leeward end.

reasonable approximation to it. Fresh air may be supplied to a building either by means of the natural currents of the atmosphere, or by the propelling power of machinery. If the natural mode is adopted, there must be a complete abandonment of all broad buildings where the wards get air only on one side, and of all structures where they are one above another several stories high, as such edifices cannot be perfectly ventilated by natural means. The pavillion system should be always adopted, that is, a system of narrow wards isolated from each other and opening to the air upon both sides by abundant windows or ventilators. The U. S. Government has adopted this system with immense advantage in several places. The Mower Hospital at Chestnut Hill, Philadelphia, is an example. The wards are just wide enough for two rows of beds with an alley way between. They are only one story, and are of sufficient height to give each patient a space of 1000 cubic feet. The heads of the beds are placed next to the wall as usual. The fresh

air is admitted at openings along the base boards close to the head of each patient, so that it is breathed almost in its purity before it has had time to mix with the general air of the ward. This is a point of extreme importance. The heads of the patients should lie in a positively pure atmosphere, and not in a mixture of good and bad air. The foul hot air passes out in a free opening extending along the ridge or peak of the roof. The result is what might be expected; 6845 patients had been treated in this hospital up to May 1, 1864, of which 2937 were wounded. Not a single case of hospital gangrene has ever occurred. Only one patient has died of erysipelas, and but 49 cases of erysipelas have occurred. Out of all these gunshot wounds, amounting to nearly 3000, but two cases of pyæmia have occurred, and the total mortality of the hospital is only two-thirds of one per cent. Compare this exhibit with that of the crowded Russian hospitals at Simpheropol.

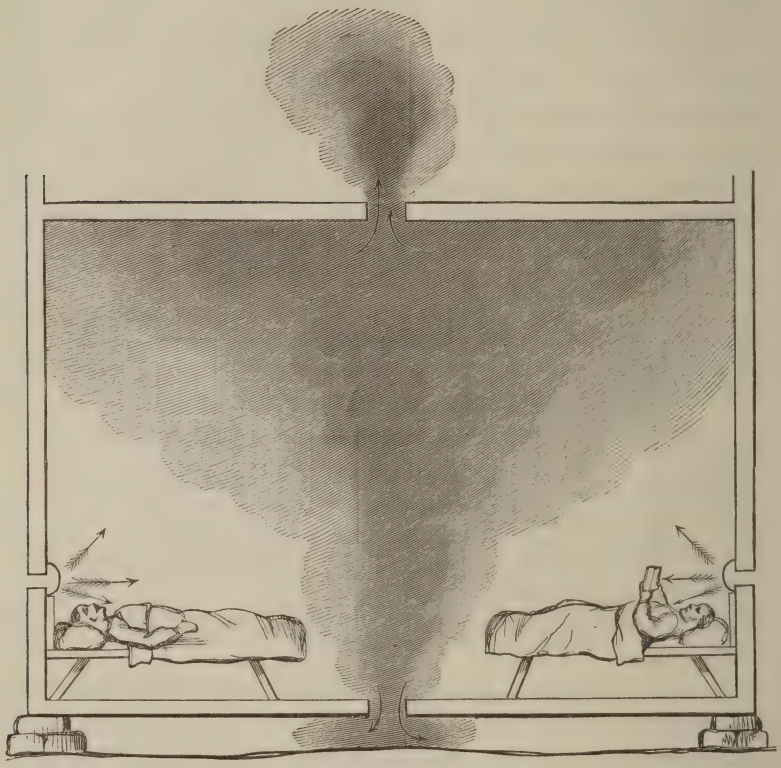
Russian Hospitals.	Mower General Hospital.
No ventilation.	Perfectly ventilated.
Hospital gangrene, erysipelas, pyæmia, and typhus fever, the chief diseases.	No hospital gangrene nor typhus, scarcely any erysipelas or pyæmia.
Mortality over 20 per cent.	Mortality two-thirds of one per cent.

This is a fair sample of the relative effects of good and bad ventilation.

If a hospital is destined to be permanently occupied with a large number of patients, it should be provided with a system of artificial ventilation by means of a fan blower and a steam-engine. This should be placed in a convenient position, and from the fan wheel flues run around each ward, so as to introduce a current of pure air at the head of each bed. In Europe this plan has been modified, so as to cause a current of air to blow in *under* every bed and thence to rise in a gentle flow around the whole circumference of it, which accomplishes the purpose very well. Probably for a military hospital, where the patients are all accustomed to free exposure, it would be best to introduce the air in a gentle current just *over* the head of each bed, so as to flow along the patient's face towards the foot of the cot. This would sweep the exhalations of the lungs, and every other impurity at once towards the centre of the room, and each breath the patient inhaled would be as absolutely pure as the out-door winds. The impure air should find exit at openings in the ridge or the floor, or both, along the whole length of the

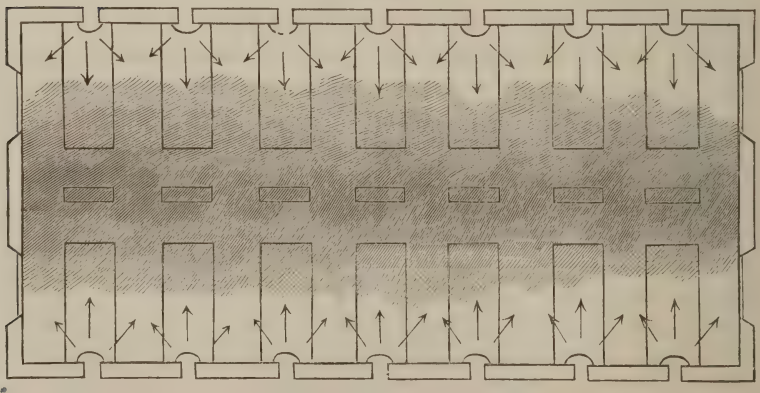
ward. Figures 3 and 4 illustrate this plan, and show how by means of it the respiratory movements of the patient are always

No. 3.



Cross-section of a ward ventilated by air admitted at the head of each bed.

No. 4.



Plan of a ward ventilated by air admitted at the head of each bed.

carried on in a pure atmosphere. The shaded space, as before, represents the location of the foul air.

In collecting the information on which this report is based, your Committee have been greatly aided by the courtesy of medical officers in the army. Our thanks are especially due to the following gentlemen.

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——— WEEKS, M. D., Surg. U. S. Vols. Louisville, Kentucky.

We have aimed in this report not to put on record an exhaustive treatise on ventilation, but to array some few startling facts bearing on truths which as yet seem not to be known to all the profession. We hope in this way to render our report practically useful to our brothers in arms before the present war closes.

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THE

PHYSIOLOGICAL AND DIETETIC RELATIONS OF PHOSPHORUS.

BY

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THE PHYSIOLOGICAL AND DIETETIC RELATIONS OF PHOSPHORUS.

THE very peculiar physical and chemical characteristics of Phosphorus, its exceeding facility for oxidation, its almost universal presence in the tissues and fluids of the body, its abundance and uniformity in the secretions, indicative of marked activity in the functional operations and metamorphic changes of the tissues, all conspire to demonstrate that it bears relations to the vitality of the organization of the highest importance, but which would appear not to have received their due meed of investigation, and that the true nature and value of its *role* in the phenomenal movements of the animal organism, though modern chemistry has greatly enlarged our knowledge concerning them, are yet to a considerable extent undetermined.

In order to an approximate understanding of the importance of this peculiar element, let us take, first, a *coup d'œil* of the extent of its combinations in the different tissues, fluids, and excretions.

PHYSIOLOGICAL RELATIONS.

The salts of phosphorus are found at the very threshold of the apparatus by which food is converted into living tissues, viz., in the *saliva* and *gastric juice*. How far its influence is essential in the changes wrought by these fluids upon the ingesta is unknown, but, certain as we are that no element of the organism, however small in amount, is not without some value, we are assured that digestion demands it for its perfect completeness.

In other fluids concerned in digestion, as the bile and the pancreatic and intestinal juices, the phosphates of soda, lime, and magnesia exist in decided proportions.

In the blood itself it is contained in the following proportions, viz., in 1000 parts of the

	Blood Corpuscles.		Liquor Sanguinis.
Phosphoric Acid	1.134		0.191
Phosphate of Lime	0.114		0.311
" " Magnesia	0.073		0.222
	1.321		0.724=2.045
Blood cells	0.218	Plasma	0.550=0.768
Making a total of			2.813

We are told that the serum of cholera blood contains more than its normal amount of potash salts and phosphates, indicating a deficiency in other fluids or parts.

Further, according to Frerichs, in the *seminal fluid* of fishes, birds, and mammals, phosphorus exists in an *unoxidized* state, with about 5 per cent. of phosphate of lime. "The same salts occur in the serum as are found in the blood, phosphate of lime, and especially phosphate of magnesia preponderating."[1]

The ash of the *egg* yields 67 to 70 per cent. of phosphoric acid.

In *milk*, the phosphates are present in larger quantity than in blood, the ashes of cow's milk yielding (according to analysis by Weber) 28.4 per cent. of phosphoric acid.

In *mucus* a small quantity of alkaline and earthy phosphates is found, sebaceous matter, such as the smegma præputii, and other similar secretions containing it in large proportion.

In the *sweat* no alkaline phosphates are found. The earthy phosphates which occur in the ash are due solely to the epithelium.

The *urine* is the most important of the secreted fluids in connection with this, as with some other substances.

"An adult man excretes daily through the kidneys from 3.2 to 3.8 grammes, or from 50 to 60 grains, of phosphoric acid, or, according to Hegar, Gruner, and Winter, a daily average of 0.064 of phosphoric acid for 1000 parts of bodily weight, which amount is much affected by the food. It is increased by those foods which contain phosphoric acid or phosphorous compounds, which by oxygenation in the blood become converted into that acid, and diminishes during prolonged abstinence, without, however, altogether disappearing. It is more abundant during an animal than during a vegetable diet.

"Any cause which increases the rapidity of the metamorphosis

[1] Day, Physiological Chemistry, p. 239.

of the tissues, augments the urinary excretion of this acid; thus, after strong bodily exercise, or prolonged mental excitement, or after copious ingestion of water (or watery fluids, as beer, &c.) we have an augmentation of phosphoric acid, while after the use of substances which check the rapidity of disintegration, such as coffee and alcohol, we have a diminution of this constituent in the urinary secretions.

"The earthy phosphates excreted daily by an adult male amount, on an average, to 1 gramme (about 18 grains), but is liable to variation, dependent on the nature of the food. Thus Lehmann found that while living on an ordinary mixed food, he excreted 1.09, and while living on a purely animal food 3.56 grammes.

"In the urine of young children and of pregnant women there is often a great diminution of the phosphate of lime; indeed, after six months of pregnancy, we often fail to detect any indication of its presence."[1]

The reason of this deficiency of the phosphates in the excretions of pregnant women and young children is undoubtedly due to the great demand for this material for the formation and development of the osseous and other tissues of the fœtus and infant, and its diversion in those directions. A small quantity of phosphate of lime occurs also in the fæces, but, according to Dalton, that is only the superfluous residue of what is taken with the food.

It is found in the *cartilaginous tissue* as phosphate of lime and magnesia; in the *muscular tissue* as acid phosphate of lime; in the ash of the *liver* to the extent of 43.37 per cent., and in that of the *spleen* 18 to 27 per cent.

But the largest proportions of phosphorated matter are found in the *osseous* and *cerebral* tissues.

In its relation to the bony tissue, it is remarked by Day that "*phosphate of lime* affords the most striking illustration of that class of bodies, which are chiefly serviceable from their physical characteristics, since it is to it that the osseous skeleton mainly owes its firmness and hardness. Thus, when too little phosphate of lime is taken into the system with the food (as in Chossat's well known experiments) or where certain physiological processes make a special demand for this salt (as during pregnancy, when the fœtal bones require it for their ossification, and during the period of dentition), the bones lose more or less of their firmness, and fractures

[1] Day, Physiological Chemistry.

do not readily heal. * * * Of all parts of the body the teeth are the richest in this substance, which is most abundant in the enamel. Thus we learn from the best authorities the quantity of phosphate of lime in 1000 parts of the following substances to be

Cartilage	40	Dentine	643
Bones	550	Enamel of teeth	885

But doubtless the *most* important of all the relations of this element in the animal economy, and in striking contrast with its physical relations in bony tissue, is that which it bears to the brain and nervous system. In the mineral constituents of the brain there are of the

Phosphate of Potash	55.24
" " Soda	22.93
" " Iron	1.23
" " Lime	1.62
" " Magnesia	3.40
Free Phosphoric Acid	9.15
A total of	93.57 per cent.

The remainder consists of chloride of sodium, sulphate of potash, and silica.

In addition to this extensive participation of phosphorus in the formation of the original tissues, and the activity of their functions, it is thought that the *plasticity of the exudations*, which has been commonly supposed to be entirely due to their fibrin, is also largely dependent upon their phosphatic elements. Some exudations (as acute dropsy) contain an abundance of fibrine, but are without the morphotic element, hence the inference that this plasticity, is in some way connected with the escaped contents of the destroyed blood corpuscles, and that the phosphates probably assist in conferring this property on exudations, for we find (even in the lower animals, whose organisms are relatively poor in such salts) that wherever cells and fibres are formed, phosphates are accumulated in appreciable quantity; and it is stated by Lehmann, that the blood returning from organs remarkable for the activity of their metamorphoses (as the muscles) contains far less phosphates than the corresponding blood returning from organs which exhibit a less amount of vital activity. Moreover, careful analysis has proved that even in the plastic secretions from wounds, there is a larger proportion of phosphates than in the corresponding liquor sanguinis. These facts seem to warrant the view that the presence of phosphates is

necessary for the formation of cells and tissues, although they by no means entitle us to hold that plasticity is due to them alone.[1]

PATHOLOGICAL RELATIONS.

The *ubiquity*, and of course the *essentiality*, of this elemental ingredient of the animal organization being ascertained, an exceedingly important and interesting question for the practitioner of medicine and the hygienist to determine, is how far the departures from health, observable in the human family, may be due to its variations of quantity from the normal standard, in the various tissues.

With regard to the bony structure, it has long been established that some of its diseases are directly attributable to a deficiency of its earthy constituent. Says Dalton: "Whenever the nutrition of the bone during life is interfered with from any pathological cause, so that its phosphate of lime becomes deficient in amount, a softening of the osseous tissue is the consequence, by which the bones yield to external pressure, and become more or less distorted." The connection of cause and effect is, in this instance, directly traceable by the test-tube and the reagent. It has long been the opinion of the writer, that decay of the teeth is also frequently due to a deficiency of this material.

But a graver question relates to the dependence of the nervous system upon the phosphatic element for *its* integrity and healthfulness, its capacity to impart power to, and in turn to receive power from other organs and functions, and thereby maintain a proper condition of the whole. In its two great divisions, 1*st*, the *cerebro-spinal*, with its endowments of sensation, motion, special sensation, volition, and even intellection, by which the being sustains his relationship with the external world; and, 2*d*, the *ganglio-sympathetic*, under whose guidance all the processes of nutrition, growth, and secretion of the whole body are accomplished, may it not be that the nervous system derives a large degree of its capacity for these mysterious functions, from the element in question? This idea is certainly much strengthened by the double fact of the phosphatic element being so large an ingredient in the nerve matter, and its very peculiar, highly oxidizable, almost ethereal essence seeming to adapt it to just such functions as pertain to this system.

Moreover, while physiology teaches us that there is an incessant

[1] Day's Physiological Chem., p. 386.

demand for the introduction into the great alembic of the organism, of fresh particles for the replacement of those destroyed and removed by the never-ceasing functions, we know that there is no part of the organism whose operations are so incessant, so active, so exalted and important as the nervous system, the stimulating power, the unsleeping superintendent, director, and sustainer of every organ, every function, and every fibre. Even during those hours of rest, constituting one-third of our lives, when the entire voluntary muscular system is in a passive condition, when the heart's action is subdued, and the respiratory function is comparatively calm, the never sleeping brain and nerves maintain their active vigils, watching over and directing the ebb and flow of the vital principle, in every one of the unnumbered millions of motor, nutrient, and secretory operations of the living body. In proportion to its high position in the animal, and especially in the human organism, is the necessity for its perfect integrity in every chemical and physiological element; the slightest deficiency or derangement of any one, occurring in the nervous system, must exert an evil influence upon the operations of other organs and functions, corresponding in degree to the relative importance of the deficient element.

In 1834 Couerbe advanced the notion that the healthy or morbid conditions of the mental faculties were connected with variations of the amount of this substance in the cerebral matter. "In the brains of sane men," says he, "I have found from 2 to 2.5 per cent. of phosphorus; in those of idiots only 1 to 1.5; while in those of madmen there are from 3 to 4.5 per cent."[1]

Although Pereira applies to this idea of Couerbe the epithet "absurd," and insists that the accuracy of the assertion has been disproved, apparently on the ground that Lassaigne fixes the amount of phosphorus in the brains of madmen at less than 2 per cent. it is submitted with all due deference, that insanity varies greatly in degrees of severity, from the most violent and active form of acute mania, to the mildest melancholia and hallucination, conditions not incompatible with, and reasonably dependent upon, equally great variations in the amount of phosphorus in the cerebral substance.

I would here suggest another pertinent physiological fact, as having an important psychological bearing; allusion has already been made to the fact that phosphorus is a constituent of the sexual apparatus and secretions.

[1] Pereira on Food.

In the reports of lunatic asylums, no small prominence is given as causes of lunacy and idiocy, to two vicious practices, in which the human animal almost solely indulges, viz: excessive venery and masturbation. The latter particularly, by its exhaustive tax upon the nervous system, is well understood, among professional men, to be a direct and frequent cause of idiocy and insanity, more especially among the male sex, but by no means confined to it. Few practitioners of experience but can recall numerous instances of hopeful and promising intellect blasted on the verge of maturity by this unnatural habit, and while much of this dire result is doubtless due to the oft-repeated premature erethism, resulting in a corresponding depression of the vital powers, it may be fairly attributed also in part to the violent and excessive drainage, and insufficient replacement of the phosphatic element.

Again, it is a very important, as well as a very nice question, how much of the exhaustion, prostration, deficient strength, and fatigue incident to the physical exertion of the laboring man, may be due to an insufficiency of this element in his food, and consequently in his nervous organization. This question has an especial value to our whole country at the present crisis of its history in relation to the dietary of the army, uncertain, irregular, meagre, and unsavory as it too often, of necessity, is, especially under such arduous physical labor, and almost unceasing vigilance for many successive days and even weeks as are required in the unusually severe campaigns of the present war. Rarely if ever in the history of our race have such vast arrays of men been called to endure such prolonged and exhausting drains upon their physical and mental powers as are now being witnessed, the occasions presenting almost unparalleled displays of prowess, skill, and endurance, affording studies of vast interest not only to the patriot and the statesman, but to the physiologist as well.

There is reason to apprehend that at the termination of our national struggles, the number of inmates of our lunatic asylums from that source will be found to have been largely increased.

In the successive exhaustion of the nervous power under the hyper-stimulated vigils and exertions of the march, the picket, and the battle, there is a greatly increased demand not only for carbon and nitrogen, those grosser (if the expression may be allowed) histogenetic elements, but likewise of this finer and more ethereal element, upon which the spiritual part as well as the functional operations, are probably more directly dependent.

As in the apparatus constituting the electric telegraph, the various parts, the battery, the magnet, the style, the wire, though in the most perfect order, are valueless without the presence of the galvanic fluid which stimulates them into life and action, so the chemical constituents of the animal structure are but dead matter in the absence of some one principle to put all in motion.

How far the vital principle, that mysterious and unknown power which alone distinguishes the living from the dead, is connected with or dependent upon this or any other one chemical constituent of the animal or vegetable body, it is not our object now to inquire; but that the healthful integrity of the living organism is to a very considerable degree related to this very peculiar substance under consideration, is an idea justified by a number of well-known chemico-physiological facts.

The Relation of Phosphorus to the Function of Respiration.

In beautiful illustration of the great physiological value of this material, the following statement of the part performed by one of its saline compounds in connection with the absorption by the serum of carbonic acid, and its separation by the process of respiration, is condensed from Baron Liebig.[1]

"There is no known salt the chemical characters of which approach more closely to those of the serum of the blood than the phosphate of soda; there is none more fitted for the absorption and entire removal from the organism of carbonic acid. * * *

"When carbonic acid gas is placed in contact with a solution of one part of dry phosphate of soda, in 100 parts of water, twice as much carbonic acid is absorbed as an equal volume of water, at the same temperature, can take up. * * *

"When carbonic acid is taken up by the blood, there is established between the phosphoric and carbonic acids an equilibrium, similar to that existing in the juice of flesh between the phosphoric and lactic acids. In the same way as these divide between them the potash of the juice, so do the carbonic and phosphoric acids divide between them the soda of the blood. There can be no circumstance more favorable to the separation of one or other of the two acids.

"If we assume that the carbonic acid seizes a portion of the soda, we may imagine that the phosphoric acid, previously combined

[1] Researches on the Chemistry of Food.

with this portion of base, is expelled from the place it originally occupied, and thus set free; but it does not yet, on that account, separate from the compound. We can say that the carbonic acid is converted into carbonate of soda only when the free phosphoric acid has been removed, and employed in another quarter; but in point of fact, this phosphoric acid, thus displaced, is always present, and retains, unimpaired, its power of again combining with the soda. The slightest cause, coming in aid of its affinity, so as to give it the preponderance, suffices to displace the carbonic acid, and to reproduce the original compound. Agitation with air; the spontaneous evaporation of the water in which the compound is dissolved; the diminution of the atmospheric pressure; all these causes, which have no effect on neutral carbonate of soda, produce decomposition, and cause the separation of the carbonic acid taken up by the phosphate of soda in the blood. In this manner, the amount of carbonic acid in the blood is kept at a constant value. If more carbonic acid enters the blood from the body, more phosphoric acid is set free in proportion, and thereby a more easy and complete separation of the carbonic acid in the lungs is secured. If more soda be taken up, then a part of the carbonic acid which would otherwise have escaped by the lungs and skin is expelled by the urinary passage in the form of carbonate of soda."

The learned chemist, as a practical conclusion to this exposition of the mutual relations and movements of these elements, the phosphorus, carbon, and soda of the blood, remarks: "It is easy to foresee that a more exact study of the influence which alkalies, salts, and mineral acids exert on the respiratory process in the normal state, must lead to the most beautiful and valuable results in regard to their employment in various diseases."

DIETETIC RELATIONS.

Investigations into the chemistry of food have demonstrated that in its preparation for the table, while pampering to luxury and the pleasures of the palate, we often reject a considerable portion of this and other important constituents of both animal and vegetable matter, whereby we are deprived of much of the nutriment which Providence, in the creation of various edibles, has specially provided for the sustenance of our strength and the prevention of disease and premature decay. That a deficiency in the blood and tissues of the normal amount of phosphorus and its compounds is

regarded as a probable cause of disease, is evinced by the attention recently bestowed by medical practitioners upon a class of remedies whose efficacy depends upon this substance in various forms of combination, in the treatment of several disorders of the asthenic type.

Allusion has already been made to one well marked disease, mollities ossium, whose sole cause is admitted to be a privation of one of the phosphatic salts—arising either from a deficiency of it in the food, or from a defect in the assimilative function, preventing its introduction into the osseous fabric.

Scorbutus.

This fact leads directly to the suspicion that there may be other departures from the normal condition from similar causes, and one occurs to the mind of so prominent a character as almost to carry an *à priori* conviction of the truth of the theory, viz., that peculiar condition of the soft tissues denominated *scurvy.*

This disorder is universally and justly attributed to a too abundant and protracted use of salted animal food, and the idea prevails to some extent that it is from some undefined and obscure action of the muriate of soda upon the blood producing a condition of the soft tissues, somewhat analogous to *mollities ossium.*

But on this subject Liebig has thrown a flood of light by his researches on the composition of certain kinds of food. Thus he tells us:—[1]

"It is universally known that, in the salting of meat, the flesh is rubbed and sprinkled with dry salt, and that where the salt and meat are in contact a brine is formed amounting in bulk to one-third of the fluid contained in the raw flesh.

"I have ascertained that this brine contains the chief constituents of a concentrated soup or infusion of meat, and that, therefore, in the process of salting, the composition of the flesh is changed, and this, too, in a much greater degree than occurs in boiling. In boiling, the highly nutritious albumen remains in the coagulated state in the mass of flesh, but in salting the albumen is separated from the flesh; for when the brine from salted meat is heated to boiling, a large quantity of albumen separates as a coagulum. The brine has an acid reaction, and gives with ammonia a copious

[1] Chemistry of Food, p. 111.

precipitate of the double phosphate of ammonia and magnesia. It contains also lactic acid, a large quantity of potash, and kreatine."

The clear inference from this is, that this supposed preservative process is actually a destruction of some of the most valuable properties of flesh as food. Have we not here a development, in part at least, of the etiology of *scurvy*, following the too abundant use of salted meats? This disease is commonly attributed as much to the absence of fresh vegetables as to the use of salted meats, and a supply of acid fruits is generally deemed all sufficient and essential to the restoration of health. But this peculiar pathological condition is probably due as much, if not more, to a deficient supply of phosphoric acid and its salts, as to the want of any of the vegetable acids. A striking confirmation of this view was given by Dr. Kane, in his dependence upon the use of fresh animal food, with its normal supply of the phosphatic salts, to overcome the profound scorbutic condition of his crew of Arctic voyagers, in a region where fresh vegetable diet was inaccessible. His long tried and devoted experience gives to his conclusions the weight of scientific authority. "I do not know that my journal anywhere mentions our habituation to raw meats, nor does it dwell upon their *strange adaptation* to scorbutic disease. Our journeys have taught us the wisdom of the Esquimaux appetite, and there are few among us who do not relish a slice of raw blubber or a chunk of frozen walrus beef. The liver of a walrus (awuktanuk) eaten with little slices of his fat—of a verity is a delicious morsel. Fire would ruin the curt, pithy expression of vitality which belongs to its uncooked juices. Charles Lamb's roast pig was nothing to awuktanuk; * * * as a powerful and condensed heat-making and antiscorbutic food *it has no rival.* I make this broad assertion after carefully testing its truth."[1]

Doubtless in all similar cases of scorbutic disease in which the healthy condition of the tissues has been restored under the use of fresh acid vegetables, the effect is as much due to the phosphorus, in its several forms, which they contain, as to their other constituents.

That it is not to the absence of fresh vegetable food alone that scurvy is to be attributed, is confirmed by the fact that the Greenlanders never suffer from that disease when their food is sufficient, though they never procure vegetables, their diet being solely from the animal kingdom.

[1] Arctic Explorations, vol. ii. p. 15.

To what extent the *scrofulous diathesis* may correspond with the scorbutic in its relations to phosphorus, is another highly important question for the study of the pathologist. The popularity evinced in the use of the phosphate, the hypophosphite, and pyrophosphate salts, in the treatment of phthisis and kindred diseases, would seem to indicate a general professional belief in an intimate connection between them.

How far a more highly phosphorized aliment would operate as a prophylactic when used by the mother during pregnancy, and by the threatened hereditary subject during the period of growth and development, is also a question deserving the earnest consideration of every individual in the profession, and thousands more out of it.

A considerable personal experience in these matters has furnished to the writer decided evidence of the value of the use of such a diet by the pregnant female, in the better development, and increased vigor of the offspring, as compared with those born of the same mother under other circumstances. I have seen the most marked difference in the physiological character of children of the same family, dating from the adoption of a dietetic treatment of the kind referred to; and there can be little doubt that the non-vitality of many a still-born child is due to a system impoverished of this important element, which a differently fed mother would have supplied.

In the bold and interesting experiments upon his own person by Dr. W. A. Hammond, detailed in Vol. 10 of the *Transactions* of this Association, striking proofs are given of the effects of insufficiently phosphorized food, in the single and exclusive use of albumen, starch, and gum, materials which, chemically and conjointly considered, embrace all the elements necessary for the tissue forming and heat producing operations of the body.

The demonstration was conclusive that, however well the bulk and the general organization of the "man machine" may be maintained, in the absence of certain other inorganic elements, as sulphur, phosphorus, &c. the wheels of life very soon become embarrassed.

Under the ordinary mixed diet of the five days preceding the exclusive use of albumen, the average daily excretion of phosphoric acid with the urine was 55.85 grains. In the ten days during which albumen was exclusively used as food, the amount thus eliminated fell from 36.17 on the first day to 9.15 on the tenth day, giving a mean of 22.04 grains, or less than one-half, though the amount of urine itself was considerably increased.

The albumen ingested was all obtained from bullock's blood, by boiling it, and was taken in the coagulated form. It doubtless retained a portion, if not the whole, of its original phosphate salts, yet insufficient, as we have seen, to supply the normal demands of the system.

The ten days trial of starch, a variety of food containing no matter from which phosphorus could be elaborated, showed a reduction of the amount of phosphoric acid excreted from 27.18 to 5.31 grains, a mean of 13.66, being less than one-quarter the normal average.

Four days exclusive diet of gum reduced the amount excreted on the fourth day to 4.55 grs. and, if it could have been borne, a continuation of that experiment for ten days would doubtless have exhausted the system entirely of its available phosphorus, with dire consequences to every organ and function.

The urine of man, as of the carnivora in general, is known to be the principal avenue through which the waste phosphorus of the disintegrated tissues is eliminated from the system, 50 to 60 grains of the acid being thus daily lost, the only means of replenishment being the ingesta. It is highly interesting to note the difference, in this respect, between the nephritic functions of the carnivora and the graminivora, as explained by Liebig.[1]

"The urine of the graminivora contains so small a portion of alkaline phosphates as to have been overlooked by most observers. The deficiency or absence of the alkaline phosphates in the urine of the graminivora obviously indicates the slowness with which the tissues in this class of animals are metamorphosed; for if we assume that a horse consumes a quantity of vegetable fibrine and albumen corresponding to the amount of nitrogen in his daily food (about 4½ oz.), and that the quantity of tissue metamorphosed is equal to that newly formed, then the quantity of phosphoric acid which, on these suppositions, would exist in the urine is not so small as not to be easily detected by analysis in the daily secretion of urine (3 lbs. according to Boussingault): for it would amount to 0.8 per cent. But, as above stated, most observers have been unable to detect phosphoric acid in the urine of the horse.

"Hence it is obvious that the phosphoric acid, which in consequence of the metamorphosis of tissues is produced in the form of soluble alkaline phosphates, must re-enter the circulation of this

[1] Animal Chemistry, p. 76 et seq.

class of animals. It is there employed in forming brain and nervous matter, to which it is essential.

"In the graminivora, therefore, whose food contains so small a proportion of phosphorus or of phosphates, the organism collects all the soluble phosphates produced by the metamorphosis of the tissues and employs them for the development of the bones and of the phosphorized constituents of the brain. The organs of excretion do not separate these salts from the blood; and the excrements of the graminivora contain only insoluble earthy phosphates."

The foregoing presentation of the physiological and pathological relations of phosphorus, very brief and imperfect though it is (in the quoted works of Liebig, Lehmann, Day, and others these subjects are fully discussed), will suffice to satisfy the mind of the great importance to the development, integrity, and strength of man, of a due supply of this element in his food, the only natural source of its procurement. It becomes, therefore, a very necessary question for the hygienist to determine, whether in the processes of cultivation, gathering, and especially of preparing for use, any of his numerous articles of sustenance, man is careful to preserve in its natural amount and condition, all of this valuable element as furnished by the animal and vegetable kingdoms.

To one considerable source of its loss by a very common mode of preserving animal food, and to the injurious consequences resulting therefrom, allusion has already been made in a previous page, derived from the researches of Liebig, who has shown that the salting of flesh deprives it of a large proportion of its native phosphorus, and that to the too free use of animal food thus prepared, the production of scurvy is properly attributable, in part, if not wholly.

Turning our attention thence to the vegetable supply of phosphorus, we are taught by the close investigations of modern chemists, that in one very important article especially, nature has deposited an ample proportion of this element, but which, in our treatment of it, furnishes a remarkable instance of the destructive influence of modern refinements in the preparation of food.

A careful dissection of the *wheat berry*, or grain (to which allusion is here made), shows it to be composed of several distinct portions, an outer bark, called the bran, of a reddish-brown color, and an interior white portion.

The bran has a double layer, of which the outer, or true bran, or

bark, may be partially removed by moistening the grains and rubbing them between the folds of a coarse towel. The hull or bark thus separated, is chiefly composed of woody fibre and contains but little nutritious matter. It forms less than $3\frac{1}{2}$ per cent. of the weight of the unbranned berry. Within this bark, and constituting a continuous wrapper, is the most important constituent of wheat, as it contains the phosphates and nitrogenous ingredients, the fibrin, the albumen, and the cerealine out of which the various tissues of the body are elaborated. Within this envelope of gluten, extending to the centre of the grain, is a mass of starch; there are therefore 3 portions:—

1st. The bran proper, forming the outer envelope.

2d. The inner envelope of gluten, including the phosphates and nitrogenous compounds.

3d. The body of starch.

The bark envelope, including the portion next the gluten, consists of several layers, the outermost of which resembles very thin straw; the gluten is in cells—and the starch is granular and loosely held together by a coarse network of cellular tissue.

The starch, as is well known, with the gum, sugar, and oil which are present in small quantities in wheat meal, furnish material for maintaining the temperature of the body through the respiratory function.

The important point in this connection is that in the preparation of the grain for use, the bran is bolted away, carrying with it the adjoining layer of gluten in which are lodged much of the nitrogenous matter, besides *fourteen times as much phosphoric acid as is contained in superfine flour*, the percentage in the bran being 2.82, while in superfine flour it is only 0.20. One hundred ounces of bread made from flour of the latter quality contain about three ounces less of phosphates than the whole wheat contained.

"All the phosphates and nitrogenous compounds enter into the bread when the bran is not separated from the flour, instead of a small fraction only, as in bread made from superfine flour. We may hence understand why bread made from Graham flour, and the Pumpernickel of Westphalia, which is also made from unbolted meal, and the black bread of like origin found in the sacks of Russian soldiers in the Crimea, are so nutritious, in spite of their heaviness and sourness. They contain *all* the gluten as well as starch of the grain."

[1] Horsford's Theory and Art of Bread-making.

There is one other mode besides those mentioned above, by which all the virtues of this wonderful little grain—*the life preserver of the world*—are retained, a mode more simple, economical, and convenient than, and fully as agreeable as, any of the others.

It is denominated "*Farina Cocido*," a specimen of which is herewith presented.[1]

This article is *wheat grain*, which has been subjected to a heating process (hence the term *Cocido*), and afterwards ground in three different degrees of fineness, adapting it to varied circumstances of health and sickness.

In this form it is a staple diet in some of the South American States,[2] where it is extensively used by both the wealthy and laboring classes, by whom it is preferred to the more elaborate and finer forms of comminution and preparation of the grain. The article under consideration is ready for immediate use without further preparation, though it may be still further cooked and combined with other articles in various forms, according to taste.

This preparation would form a most admirable ration for the army. Requiring no further cooking, and there being nothing to spoil by rough handling, or in other ways of ordinary usage, it may be eaten to the last morsel, either dry or simply mixed with water or milk. It weighs 20 per cent. less than its equivalent of flour, and it is estimated by good authority[3] that its use as a ration by 100,000 men, instead of the hard bread and flour ration, would save to the Government at least $1,000,000 every year, besides furnishing a far more healthful, nutritious, and portable food.

Its general use among the laboring classes especially, but also among the wealthier, and in our prisons, asylums, and other institutions, would undoubtedly prove both economical and wholesome. Substituted for salted meats, on long voyages and other situations, it would be found not only economical as an article of food, but especially valuable as a preventive of scurvy. An essential oil developed by this mode of preparing the grain is believed to add materially to its value in dyspepsia, diarrhœa, and other intestinal disorders.

Upon this view of the importance of phosphorus to the general well-being of man, and to the healthful performance of his mental and bodily functions, the subject of dietaries of public institutions,

[1] From the factory of Miles & Holman, New York.

[2] Whence it was introduced into the United States, by Charles R. Macy.

[3] Professor E. N. Horsford.

as also of the people at large, especially the laboring classes, is presented in a manner very different from that in which it has been generally regarded.

In the dissertations and discussions upon this important topic of human economy, nitrogen and carbon, as the predominating and chief basic elements of the animal tissues and functions, have heretofore received almost exclusive attention, the consideration of the phosphatic element of the food and the organization being almost wholly ignored.

Under the direction of the government authorities of Great Britain, a series of experimental investigations have lately been made respecting the most economical and nutritive dietaries adapted to both the free laboring populations, and to those subjected to confinement in workhouses and prisons, whether compelled to labor or inactivity. In a paper upon the subject read before the *London Society of Arts, and of the Institutions in Union,*[1] by Edward Smith, M. D., Assistant Physician to the Hospital for Consumption, Brompton, we are furnished with an exceedingly minute and able exposition of some of the principal points upon which private and public dietaries should be established, in order to obtain from them the largest amount of nutritive material at the cheapest rate, adapted to the requirements of the several classes, under their varied conditions of freedom and exercise, incarceration and inactivity, &c.

On the question of the *lowest amount and cost of food which is compatible with prolonged life and moderate health,* this learned writer says: "It is a problem of complexity both from the varying requirements of age, sex, and labor, and from the difference in the cost of food in different localities, but we may make an estimate which shall not be far from the truth in reference to the majority of cases. When desired by the Government to answer this question in reference to the Lancashire operatives, I stated that the quantity of carbon and nitrogen required daily by a man in middle life, in good health, and making a moderate amount of exertion (viz., exercise equivalent to standing two and a half hours, walking at the rate of two miles per hour during three hours, and at the rate of three miles per hour during one hour), was 4,300 grains of the former and 200 grains of the latter, and these I derived from numerous experiments;" * * * and "with regard to women, I

[1] Journal of the Society of Arts, February 19, 1864.

was of opinion, from a consideration of all the known facts, that the diminution should not exceed one-tenth." It was also considered that a child over twelve years of age would eat as much as a woman.

Based upon this estimate, and with admirable precision and exactitude, copious suggestions are presented of the best, most accessible, and most economical means by which these essential elements of strength and nutrition can be obtained, in the ordinary articles of food. The importance of the phosphatic element in this connection, however, does not appear to have at all engaged the writer's attention, carbon and nitrogen being the exclusive objects of discussion. With such abundant opportunities for determining the dietetic value of this principle, and the influence of the addition to the diet table of the different institutions, of other articles than those mentioned, capable of furnishing it in a larger amount, it is to be hoped that the attention of the authorities will be given at an early day to this subject, in the assurance that with the scientific acumen of Dr. Smith, some valuable result will be secured.

In the last report of the dietaries of the State prisons at Sing Sing and Clinton, in the State of New York, the former containing a daily average of 1028, and the latter about 400 inmates,[1] it is stated that of the twenty-one meals per week in each, salt meats constitute the principal article of diet in more than half. The general hygienic conditions of these institutions, with some exceptions, is such as to conduce to the health of the prisoners, but the pallid complexions, generally attenuated frames, irritable nervous systems, and very frequent complaints of sickness (1600 in Sing Sing in one year), though attributable in great degree to vicious habits both before and after incarceration, are doubtless to a partial extent due to defective diet, as above indicated, and it is believed that a substitution of such an article as the *Farina Cocido*, in the place of the salted meats, would go far to improve both the health and discipline of the subjects of these and similar institutions.

[1] Nineteenth Annual Report of the New York Prison Association, 1864.

REPORT

ON THE

MEDICAL TOPOGRAPHY AND EPIDEMIC DISEASES OF THE STATE OF RHODE ISLAND.

BY

CHARLES W. PARSONS, M. D.,

OF PROVIDENCE, RHODE ISLAND.

REPORT ON THE MEDICAL TOPOGRAPHY AND EPIDEMIC DISEASES OF THE STATE OF RHODE ISLAND.

THE writer of this report finds himself appointed one of the "Special Committees on Medical Topography and Epidemic Diseases." He has accordingly prepared a sketch of the topography of Rhode Island, and of the epidemic diseases which have prevailed within that State for a few years past. He has not thought it proper to dwell on the subject of the pathology or treatment of diseases. These topics belong to general medical knowledge, and offer no local peculiarities within the narrow limits of this State. An account of the statistics of these diseases, and of any supposed causes that depend on local conditions, falls properly within the scope of such a report.

The State of Rhode Island and Providence Plantations has the smallest territory and the longest name of any of the States of the American Union. In the report on the census of the United States, its area is said to be 1,306 square miles. This, however, is greater than the actual extent of the land of the State, or the aggregate area of its several townships, and must be an estimate including a considerable portion of the waters inclosed within its boundaries. The actual area of the towns of the State, according to the most authentic maps, amounts to not much more than 1,050 square miles. Before the recent exchange of territory with Massachusetts, in 1862, the area of this State was 1,046.4 square miles. That exchange increased somewhat the territorial extent of Rhode Island. The forty-second degree of north latitude passes through this State, very near its north boundary line.

The most prominent geographical feature of the State is Narraganset Bay, about thirty miles long, and twelve miles wide at its broadest part. The principal mainland is a tract measuring more than forty miles from north to south, and twenty from east to west, and bounded on the west by Connecticut. The greater

part of this tract is bounded on the east by Narraganset Bay, and its tributary, Blackstone or Pawtucket River; the northeast corner of it, being the town of Cumberland, is east of that river. A second, much smaller division of the State, lies on the east of the Bay, and of the navigable part of Pawtucket River; it is from two to four miles wide, and is divided into two parts by Mount Hope Bay, which enters the Narraganset from the northeast. Thirdly, the islands form a very important division of the State. The island which gives name to the State fills up a large part of the width of Narraganset Bay in its lower half. There are other inhabited islands in the Bay; and Block Island, more than ten miles off shore, in the Atlantic Ocean, is a well-peopled town.

The early settlements of the State were mostly on the islands and shores of the Bay, and at its head. All the important villages which grew up before cotton-manufactures were introduced were near the water. We may defer, for the present, an account of Providence, which is at the head of the Bay. The other places have depended partly on commerce and fisheries for their support, and have not grown as rapidly as the rest of the State, with one or two exceptions. Their climate is tempered by the Bay open to the south, and by the Gulf Stream, and is more equable than that of more northerly parts of New England. Newport, the largest of these towns on the Bay, was an important seat of commerce before the Revolutionary War, and is now a summer resort of unsurpassed attractions; it is famous for its "delicious and cosmetic climate," modified by the direct breezes from the Atlantic Ocean. The part of Newport occupied by villas and hotels enjoys these advantages of air and situation to the full; but most of the residents of this old town live on the side toward the harbor, where the houses are quite crowded, and the air is more confined. The population of Newport is more than 10,000. The city has not been free from severe visitations of epidemic disease, scarlatina having been very fatal there in the winter of 1857–1858, and typhoid dysentery in the summer and autumn of 1863.

The western portion of the State is occupied by the granitic rocks, mostly gneiss, forming hills of moderate elevation, of which the general direction is from north to south. The whole tract of country from Western Connecticut to Narraganset Bay has this general character. In the western part of Rhode Island, the larger streams are altered in their course by draining eastwardly toward Narraganset Bay; except in the southern towns, where they run

toward the southwest, parallel to the general trend of the coast, and empty into the Atlantic Ocean. Still, the small beginnings of these streams often show the influence of the prevailing north and south course of the hills. The gneiss of Western Rhode Island is continuous with that of Central Massachusetts. That portion of the State is generally blessed with plenty of good pure water.

This granite tract is not generally densely inhabited, the most populous parts being the manufacturing villages which line the streams that furnish water-power. Some of these are not as favorably situated for health as the higher land between them. The houses of the operatives, which are in most villages owned by the proprietors of the factories, are too often built near the level of the streams, subject to the damp and mists of the low valley, the wells being fed more or less from the river-water, which contains organic matter from vegetable and other decomposition. In the hot and sickly season, these valleys are apt to be either sultry at night, or else the temperature falls very much and rapidly. We shall have occasion to give some details on this point, in speaking of dysentery, which appears every August and September in the lower lands of this western region of the State.

As we approach Narraganset Bay, a new geological character modifies the scenery and soil. A basin occupied by the coal-bearing rocks dips under the Bay, reaching a part of each side. The western boundary of this basin passes from near the northeast corner of the State, and runs in an irregular curve a few miles west from the shore of the Bay, till it meets that shore some twelve miles from the ocean. South of this point, the granitic rocks extend quite to the Bay, and indeed encroach on the southwestern part of its largest islands. Near this western boundary of the basin are many marks of geological disturbance, dislocated strata, metamorphic rocks, and beds of iron and lime. On the east side, the granite reappears in the towns south and east of Mount Hope Bay, and at Mount Hope. This basin, as it enters the State from the northeast, is over fifteen miles wide, and narrows toward the south. The dip of the rocks in all the western part of the basin is toward the east, sometimes southeast, sometimes northeast, and sometimes with great variations in small space. East of Pawtucket River and of the most northerly part of the Bay, the strata still dip eastwardly, draining the soil, not toward the Bay, but toward ponds and small fresh-water rivers. North of Mount Hope, toward the town of Warren, the dip is northerly; in the towns south of Mount

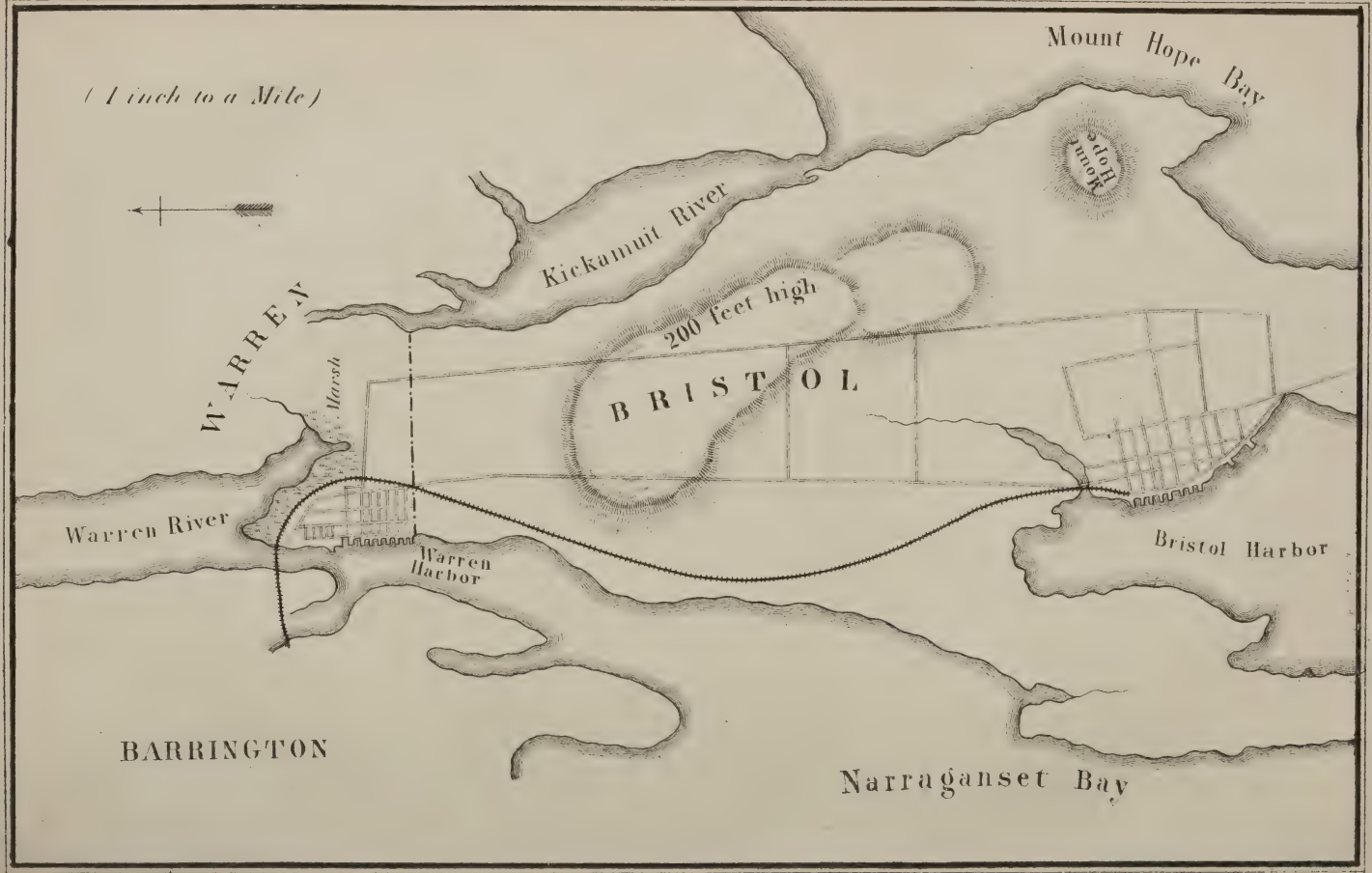
Hope Bay, and along the eastern shore of the island of Rhode Island, there is a westerly dip, being the side or wall of the basin. The main rocks of this formation are coarse and fine conglomerates, slates and shales, often containing vegetable impressions.

Some points in the topography of towns lying on the east side of the Bay and Pawtucket River, within the limits of this basin, ought not to be omitted here.

The town of Warren has a small area, and most of its inhabitants live in the village, which is situated on a rather low and level tract, having Warren River, half a mile wide, on the north of it, and a cove emptying into that river, on the northeast of the village. The soil is underlaid by hard clay. The strata in the hill south of it dip toward this low land. At very high water, the marshes adjoining the village are liable to be overflowed. There is no barrier to shelter this village from the northeast winds coming over this broad expanse of water. The compact part of Bristol is south of the hill which divides the township from Warren; it is sheltered on the north and east, and open to the Bay toward the south. It has been shown by bills of mortality kept for several years, that deaths attributed to consumption are considerably more frequent in proportion to the population in Warren than in Bristol; while Bristol has suffered more from zymotic diseases, such as scarlatina and summer complaints. In a series of years the deaths from consumption were in Warren about twenty-three per cent. of all; in Bristol, about thirteen per cent. In the former place, about one in every 275 inhabitants died annually from consumption; in the latter, about one in 450.[1] These results were published some years ago in the Second Registration Report of the State; in the Sixth Report, very similar statistics are given. It is true that the vagueness in the use of terms throws a shadow of doubt over any such results; but in each town the causes of death were usually ascertained from physicians; in Warren the bills of mortality were kept by an eminent physician of that town; and we know no reason to suppose that any difference in the nomenclature of disease prevailed in the two places.

We have also some interesting testimony from Pawtucket, which

[1] Population of Warren in 1850 was 3,103. Deaths in six years, 1850–1855 inclusive, 292; deaths by consumption, 68. Population of Bristol in 1850 was 4,616. Deaths in ten years, 1846–1855 inclusive, 786; deaths by consumption, 102.—*Second Registration Report, Rhode Island*, pp. 79, 80. See, also, *Sixth Report*, p. 75.


(1 inch to a Mile)
Mount Hope Bay
Mount Hope
Kickamuit River
200 feet high
WARREN
Marsh
BRISTOL
Warren River
Warren Harbor
Bristol Harbor
BARRINGTON
Narraganset Bay

we received in a letter from Dr. Sylvanus Clapp, a distinguished physician of that place. The village of Pawtucket lies on both sides of Pawtucket River, at the head of its navigable portion.

Dr. Clapp writes: "It is now (1862) a little more than twenty-one years since I commenced the practice of medicine in Pawtucket. After a few years' observation, I became satisfied that consumption was much more prevalent on the east side of the river than on the west. Subsequent observation has clearly demonstrated the fact; there being a fraction over two deaths on the east to one on the west, in proportion to the population. This I gather from the records of the town, as well as my own.

"The Pawtucket or Blackstone River runs a little west of south; the land rising on each side of the river about eighty feet above the level of the water. The tides come up to the falls. The land rises more abruptly on the east than on the west side. As to geological formation, the conglomerate or grauwacke, alternating with clay-slate, occurs abundantly in regular strata, which run north and south, and dip about 80° to the eastward. The dip of the rock is the same on both sides. All the springs on the west side run directly into the river, while on the east side they run in a southerly direction to the river. The soil on the east side contains more clay, and springs are much more abundant. Then there is a large pond, situated at the edge of Seekonk Plain, and not more than half a mile from the river, directly east of the village; this, when full, must cover 25 or 30 acres. It is situated higher above tide-water than the greater portion of the village. The wells, for the most part, are but a few feet below the ground, the water coming near the surface in the spring of the year. Some of the cellars in the lower streets contain more or less water every spring."

These observations agree quite well with the general results of inquiries made by Dr. Henry I. Bowditch, of Boston, and presented in the discourse delivered by him before the Massachusetts Medical Society, in the year 1862. The following extracts show the drift of his views: "I believe that all towns, parts of towns, houses even, that *rest on* damp, cold soils, are by that very fact peculiarly liable to the prevalence of consumption. I believe that similar locations *near* wet meadows, rivers, marshes, &c., though less subject to the law, are nevertheless in a lesser degree, promoters of consumption in the families resident thereupon."[1] He also shows a similar influence of north and east winds blowing over water.

[1] Communications of Massachusetts Medical Society, vol. x. p. 122.

In the western part of Providence city, and in a tract extending about ten miles south, and six miles north from it, the carboniferous rocks are overlaid by deposits of gravel and sand, with some layers of clay, forming a pretty level and not over-fertile region.

Over all these formations the "drift" common in all parts of New England is found, with its usual character of gravel and boulders.

There are no large alluvial tracts; and no very high hills, nor large rivers in Rhode Island. We doubt if any point in the State reaches a height of six hundred feet above the level of the sea. Still, the rivers have a considerable fall; in many parts they are narrow and rapid, affording excellent motive power. This fact has had a most important influence on the growth of population, the industry and social and sanitary condition of the State.

The soil is not fertile, compared with large regions which have now been brought into easy communication and competition with us. Still, it is probably more capable of yielding a profit to skilful husbandry, on an average, than the soil of Massachusetts. The northern towns were long ago celebrated for their orchards; the southern towns of the main land export great quantities of poultry; and the large islands contain most beautiful tracts of farming land.[1] But the agricultural industry of the State is far less important, in proportion to its population and wealth, than it was many years ago.

The city of Providence contains nearly or quite thirty per cent. of the population of the State. If we include those families which live a little outside of the city-limits, but are immediately connected with the city in their relations of business or employment, a population numbering probably more than 10,000, we shall have over a third of the inhabitants of the State. Providence is situated at the head of Narraganset Bay, Pawtucket River forming its eastern boundary. It was originally laid out between that river and Providence River, a mile or two farther west. But the city has grown toward the west, till now more than half of the population live west of Providence River. This river, with a broad cove, through which the tide ebbs and flows, divides the city into an eastern and

[1] To fertilize the land, in places near the Bay, it is common to spread fish over the soil. In decomposing, they produce a smell which is very disagreeable to the passer-by, and has been accused of producing disease; I have no evidence, however, on this point.

western portion. The former lies mostly beneath and upon a ridge which rises by a steep ascent to a height of nearly 200 feet. It rests on stratified conglomerate (grauwacke), overlaid with gravel; the well water is generally abundant, cold, and clear; the uneven surface gives excellent opportunities for drainage. Some streets on this side of the river are low and shut in by higher land on all sides, and mostly inhabited by families not in the best sanitary conditions. On the west side, most of the residences are built on the plateau of gravel and sand already described; this was formerly continued toward the river by sandy hills and low wet land, which has now been reduced to a regular and convenient slope. There was formerly difficulty in obtaining good water here; the water is now obtained partly from wells, and partly through pipes from fountains. A good deal of made land on this side is now covered with busy streets.

The higher parts of the city are generally occupied by the wealthier and more comfortably situated classes; the poor and laboring class, including a large part of the foreign-born, live more on the outskirts and the lower land.

The City Registrar, in his Annual Report for 1859, mentions the following favorable circumstances in the topography of Providence:—

"1. The very great inequalities of the soil within the limits of the city, giving easy and efficient drainage; the speedy removal of surface filth, and a free circulation of air. 2. The comparatively scattered location of the dwellings. 3. The numerous trees and gardens in most portions of the city. 4. The almost total absence of cellar tenements and underground population. 5. The absence of *large* tenement-houses, such as are found in other cities. 6. The absence of narrow courts and closed lanes. 7. The open space of tide-water through the centre of the city."

The most complete, long-continued, and available meteorological records kept in the State are those of Professor Alexis Caswell, the observations being taken three times a day, with very slight interruptions for more than thirty years, on College Hill, Providence. The results are published in the *Smithsonian Contributions to Knowledge*, vol. xii., 1860, covering a period of nearly thirty years.

The following table shows, in the first column of figures, the greatest height of the mercury in Fahrenheit's thermometer, observed in each month. The second column of figures shows the lowest; and the third, the average temperature for each month.

The fourth column shows the greatest range, or difference, ever observed in one month, within the whole period; the fifth shows the least range in one month, and the sixth shows the average range for each of the twelve months.

Observations of Temperature at Providence, by Professor CASWELL, 1832—1860.

MONTHS.	Temperature observed.			Range of temperature.		
	Highest.	Lowest.	Average.	Greatest.	Least.	Average.
January	63°	—14°	27°.4	65°	41°	51.°1
February	68	—15	26.7	71	37	49.4
March	73	— 4	34.5	65	34	50.3
April	82	15	44.9	67	35	46.9
May	91	28	55.2	55	33	44.8
June	97	37	65.0	50	35	42.3
July	97	49	70.7	46	28	36.7
August	94	45	68.7	45	24	34.4
September	90	33	61.4	53	33	44.1
October	82	22	50.4	55	35	44.5
November	72	4	40.0	64	37	46.9
December	65	—12	33.0	63	31	47.0
Year	97	—15	48.2	110	86	94.9

According to the same records, the average number of days in each year, in which the wind was in each quarter of the heavens, was as follows:—

Wind between north and east	74.0 days
" " east " south	29.4 "
" " south " west	121.6 "
" " north " west	137.2 "
Average number of omitted days	2.9 "
Total	365.1 "

The average number of days called *clear*, or in which the clouds were not numerous, not covering, on an average, more than one-sixth of the heavens, of variable and cloudy days, and of days marked by the fall of rain and snow, was as follows:—

Clear days	133.75
Variable and cloudy	131.57
Rain or snow	96.00
Omitted days	3.93
	365.25

The average fall of rain and snow, in inches, was 40.38 in the whole year. In each month, it was as follows:—

January	3.19	July	3.01
February	2.76	August	4.05
March	3.20	September	3.02
April	3.56	October	3.38
May	3.42	November	3.92
June	3.02	December	3.90

The population of the State is probably somewhat more than 175,000. By the census taken in 1860, it was 174,620. Since then, we have had the sad experiences of civil war, in which Rhode Island has borne its share; still, the population of Providence city is estimated by the City Registrar to have increased a few thousands since the census was taken; and this has only been in a small amount at the expense of other towns, as they have rather shared in the growth of the principal city. The balance in the recent change of boundary was favorable to Rhode Island, in regard to population as well as land. Adopting what we believe to be the correct statement of the area of the State, it is more densely peopled than any other State. We make the number of inhabitants to the square mile to have been, in 1860, in Massachusetts, 157.83, and in Rhode Island, 166.88. Probably the true density in the two States was nearly equal; that of Rhode Island being much increased by the presence of one considerable city, which contains nearly one-third of the whole population.

In ten years preceding the last census, the population increased 18.35 per cent.; in the ten years from 1840 to 1850, it increased 35.57 per cent. The gain is greatest in the city of Providence and the adjacent towns. The manufacturing villages and townships also increase far more rapidly than the purely farming towns. Several of these are nearly stationary, or even lessening in the number of inhabitants. Thus there is a marked tendency to centralization, the growth being principally in Providence and its neighborhood, in villages where water-power is abundant and convenient, and in a few points which are favorably situated for fisheries and navigation. This centralization is less obvious since 1850 than before.

This disproportionate growth of the compact and manufacturing places depends in a great degree on the influx of foreign-born inhabitants with their families. We cannot state the number of foreigners in the State according to the census of 1860. In 1850, the natives of other countries living in Rhode Island amounted to 23,902, or about one-sixth of all the inhabitants. In Providence, they formed a much higher proportion, nearly a quarter of all,

(24.7 per cent.). By the city census of 1855, they were 27.7 per cent. of all. The foreign class are found to have a larger proportion of adults in the marrying age, to be more disposed to marriage in hard times, and to have on an average more children to every marriage, than the native class. Hence, a large number of children are growing up, who are born here, but in all their associations, their early training, and the sanitary, social, and moral influences that surround them from their infancy, properly belong to the foreign class. The distinction by *parentage*, therefore, becomes more important than that by *nativity*. By the census of Providence in 1855, the persons of foreign parentage in the city amounted to 41.06 per cent. of all the population. By far the largest part of the foreign are Irish.

There were in the State, at the time of the last census, 3,971 colored inhabitants, including a few of partly Indian descent. The colored inhabitants are so few that they have little effect on the general character of the statistics. They usually report more deaths than births, and are particularly liable to consumption. They are thought to be somewhat less subject to epidemic diseases than the whites. In several years, the registered deaths by respiratory diseases among the colored were three times as many as those by zymotic diseases.

The mortality of Rhode Island is very fully illustrated in the annual reports on registration of births, marriages, and deaths. These are prepared under direction of a committee of the Rhode Island Medical Society; and ten of them have now been published, covering a period of ten years and seven months, from June 1, 1852, to December 31, 1862, and embodying the statistics of 22,929 deaths. The registration in some towns was, however, quite imperfect in the earlier part of this period, and is still by no means complete. The ratio of deaths to population therefore is not fairly represented by calculations drawn from these figures. The city of Providence, however, which contains so considerable a portion of the inhabitants of the State, has a very perfect registration; and nine annual reports have already been issued, by the City Registrar, Dr. Edwin M. Snow, containing very complete and valuable exhibitions of the vital statistics and sanitary history of that city.

The average age at death, in all the deaths included in the registration-reports of the State, was nearly twenty-nine years (28.91).

Probably the records are more defective in regard to deaths of young children than in those of adults, so that the true average age at death was not so high as this. It is known to be much lowered by the presence of a large immigrant population, with numerous growing families and young children. Thus, in Providence, in the seven years ending with 1862, the average age at death was, in persons of American parentage, 30.67; in those of foreign parentage, 19.27.

The proportion of persons dying at the several periods of age has been as follows:—

Ages.	Number.	Per cent.	Ages.	Number.	Per cent.
Under 1	3,991	17.62	40 and under 50	1,704	7.52
1 and under 5	4,380	19.34	50 " 60	1,518	6.70
5 " 10	1,125	4.97	60 " 70	1,552	6.85
10 " 15	449	1.98	70 " 80	1,672	7.38
15 " 20	875	3.87	80 and over . .	1,272	5.61
20 " 30	2,149	9.49	Not recorded .	279	.....
30 " 40	1,963	8.67			
			Total . . .	22,929	100.00

The comparative mortality of the seasons shows the increased dangers of hot weather in our climate. The deaths in ten years were thus divided:—

Months.	Number.	Per cent.	Months.	Number.	Per cent.
January . .	1,777	7.84	August . .	2,594	11.44
February . .	1,631	7.96	September . .	2,331	10.62
March . . .	1,748	7.71	October . .	1,945	8.58
April . . .	1,675	7.63	November . .	1,744	7.95
May . . .	1,657	7.30	December . .	1,787	7.88
June . . .	1,486	6.77			
July . . .	1,885	8.32	Total . .	22,260	100.00

In calculating the percentages for this table, the several months are equalized, or the months are reduced to periods of equal length, to make up for the different number of days in the several months.

There were 9,974 deaths in the first six months, and 12,286 in the last six months, of these years, taken together. The third quarter of the year is much more destructive than any other. In Great Britain, the third quarter is the least fatal. Our extremes of heat cause more immediate excess of mortality than those of cold.

In examining the diseases to which deaths are ascribed, we are well aware that scientific precision of diagnosis cannot be expected, in records gathered from the clerks of different towns, where the

amount of general information and the modes of using terms vary The law requires that the cause of death be certified by the attending physician; and in many parts of the State this is done. But the defects are great enough to deprive the results of value as the basis of exact and general deductions. Still, it must be remembered that many of the more important zymotic diseases are so easily diagnosticated and so generally known, that the figures may be trusted, as showing, with essential accuracy, the proportion of deaths due to them in each successive year, and as illustrating the laws of the several diseases.

The whole number of deaths for which causes were assigned, in ten years and seven months, was 20,805. Of these, twenty-eight per cent. or 5,835, were attributed to zymotic diseases. This term is used to include epidemic, endemic, and contagious diseases, together with those which sometimes assume such a character. Nearly as many, 5,757, or 27.7 per cent., were ascribed to sporadic diseases of the respiratory system, of which consumption and pneumonia are the chief. As the mortality of these is comparatively uniform, while that caused by zymotics in general, and by individual zymotics severally, varies every year, it follows that the proportion of zymotics is greatest in unhealthy years.

The registration was too defective in the earlier years of the operation of the present law to give results of much value, in regard to the comparative prevalence of particular diseases. We therefore take the last eight years for which reports have been issued.

The following table shows the deaths by zymotics as a whole, and by each of the more important single diseases of that class, in eight years past. The lowest line shows how many deaths out of every hundred by given causes were attributed to zymotic diseases, in each successive year, and in the aggregate of the eight years.

Deaths by Zymotics in Eight Years.

Zymotics.	1855	1856	1857	1858	1859	1860	1861	1862	Eight years.
Cholera infantum .	91	77	70	93	61	151	134	106	783
Cholera morbus .	7	6	3	2	6	7	12	6	49
Diarrhœa . . .	51	34	52	42	49	41	44	60	373
Dysentery . .	71	51	65	61	53	49	96	52	498
Croup . . .	48	62	70	69	58	57	58	73	495
Diphtheria . .	...	...	...	6	20	67	140	81	314
Erysipelas . .	15	12	14	20	14	22	13	8	118
Fever, typhoid, &c. .	64	64	88	49	76	72	103	84	600
Hooping-cough . .	4	19	9	13	46	46	45	15	197
Influenza . . .	4	...	15	6	2	2	3	3	35
Measles . . .	3	2	6	75	3	8	11	12	120
Scarlatina . .	71	208	147	234	71	64	57	47	899
Smallpox . . .	5	9	...	...	5	9	4	6	38
Others . . .	13	8	17	30	29	25	22	11	155
Total . . .	447	552	556	700	493	620	742	564	4,674
Percentage . .	26.7	31.5	26.9	30.2	24.3	24.8	27.2	23.5	26.7

SCARLATINA.

The table shows that more deaths have been ascribed to scarlatina than to any other of this class of diseases. In the whole series of reports, for ten years and seven months, there have been 1,088 deaths by scarlatina, or a little more than one in twenty of those from given causes. Yet we see that the deaths produced by it have diminished each year from 1858 to 1862. In these same years diphtheria has increased, replacing to some extent scarlatina.

Of the deaths by scarlatina in ten years and seven months, 750 were at ages under five, and 257 at ages between five and ten, leaving less than one-tenth at later ages. The decedents were, males, 533; females, 554; of sex not reported, 1. The deaths in the first quarter of the year, or the months January, February, and March, in ten years, were 372; in the second quarter, 298; third quarter, 145; fourth quarter, 238. The month of greatest mortality by this disease is March; of least fatality, September, the monthly mortality increasing with nearly equal gradations as we go in either direction from September.

Unlike some other zymotics, this does not attack the foreign families more than the American. In the Rhode Island reports, the nationality of decedents is determined, in classifying them, by the nativity of their *parents*, thus bringing the very numerous deaths of children of foreign parents, born in this country, but

living under the hygienic influences that prevail among the residents of alien origin, into the foreign class. The deaths by scarlatina are found to be more numerous in proportion to the whole number of deaths in the American than in the foreign class, thus distinguished. This shows that its fatality is not very greatly under the influence of sanitary conditions—much less certainly than is that of most epidemic diseases.

The following sentences are from a letter addressed to the writer of this report, by Dr. S. O. Griffin, of Burrillville, in relation to an epidemic of scarlatina in that town in the year 1856:—

"Burrillville embraces a territory twelve miles long and six broad, and contains a population of about 4000. In such an extent of territory, of course, I was not acquainted with every death, but the fatality was so great that I can now call to mind forty-five deaths, and feel perfectly safe in saying that not less than fifty of our child-population died in the course of the last year from this disease. In the vicinity of this village, where it was most severe, within a radius of one mile and a population of 2000, not less than thirty died of the epidemic. It was most fatal with children from three to seven years of age. Nursing children had it lightly, and but few adults were attacked. One man fifty years old died with it, also one young lady of seventeen. The most fatal period was about the fourth or fifth day. A large proportion suffered severely from the sequelæ, and several died.

"Scattered over our town are several small manufacturing villages, and the disease did not prevail in more than one of these at once, but would attack many of the children in one, and subsequently those of another, either at a distance or close by. Thus it removed from one small locality to another, till it had visited almost every nook in the town. At one time, in June, when it was raging on one street, being present in almost every house, another street on the opposite side of a small stream, parallel with the former, and only twenty-five rods distant, was absolutely exempt. I mention this instance, as it affords a very good illustration of this characteristic of the epidemic during its whole prevalence.

"But the most inexplicable phenomenon of the disease was the almost complete exemption of the foreign population, during the first and most fatal period of its prevailing. This was observable in families living side by side in the same neighborhood. It there attacked the native children, those best clothed, best fed, and best cared for in every respect, and passed over those subject to all the

modes of life which characterize the common class of our foreign population. Subsequently it manifested itself among the latter class, but not with that severity and fatality which attended it while prevailing among our own people. This was a state of things to me unheard of and unaccountable. Whatever may be said of the causes of scarlatina at other times and in other places, we cannot attribute *our* epidemic to filth, bad ventilation, poor clothing, unwholesome food, or any such kind of neglect; for as a general rule our best families, those most competent and who took most pains to observe sanitary regulations, were most seriously afflicted."

Dr. Snow, in his annual report as City Registrar of Providence, for the year 1858, writes of scarlatina as follows: "Less is known in relation to its causes than in relation to the causes of almost any other disease; and it seems thus far to baffle all sanitary investigation, and bid defiance to all sanitary precautions. Unlike most other epidemics, it visits equally the city and the country, the solitary farm-house and the thriving village, the hill and the valley, and often exhibits its most terrific power where, judging from the known laws of epidemics, it would be least expected."

In the eight years represented in the foregoing table, the whole number of deaths by all causes recorded in the State was 19,302. In the city of Providence, in the same period, there were 7,863. The registry is more full in Providence than in other parts of the State, so that this does not show the true comparative mortality of the large city contrasted with that of other parts of the State. But these figures may give us a basis for determining the comparative mortality of the several diseases in Providence and in other places. Thus, of every 100 reported deaths in the State, 40.74 were in the city of Providence, and 59.26 were in other towns. Of the deaths by scarlatina, 394 were in the city, 505 in other places; or 43.84 per cent. in Providence, and 56.16 elsewhere. Of the deaths by all zymotic diseases, 2,069 were in Providence, and 2,605 in other towns; or 44.27 per cent. in Providence, and 55.73 per cent. elsewhere.

DIPHTHERIA.

It will be seen, by the table of deaths by zymotics for eight years, that deaths ascribed to diphtheria began to appear in 1858, and rapidly increased in number, more than doubling each year till 1861, and then lessening somewhat, but still continuing numerous. This form of disease appears in some degree to have taken

the place of scarlatina. The first cases known by this name occurred in Providence, in August, 1858. The following table shows the deaths recorded in the State in each month from that time to the end of the year 1862.

Years.	Jan.	Feb.	March.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1858 . .	...	...	...	...	...	...	...	2	1	1	1	1
1859 . .	...	...	2	1	...	1	1	...	1	4	6	4
1860 . .	...	2	1	1	2	3	10	12	4	9	16	7
1861 . .	18	11	12	22	13	2	4	6	7	10	18	17
1862 . .	15	4	7	8	5	7	4	1	5	7	13	5
Five years	33	17	22	32	20	13	19	21	18	31	54	34

A part of this increase may have depended on the name's becoming fashionable, and on the common tendency to attribute peculiar and especially *fatal* cases to a name that is in vogue, and is associated with the idea of danger. For some time after the first appearance of cases to which this name was given, some intelligent physicians doubted whether it represented any new or peculiar form of disease, whether the cases were not varieties of angina, croup, or scarlatina, such as had occasionally been seen before. Time has shown that these cases, if not new, have become far more common than they ever were before within the observation of physicians now on the stage. There is reason to believe that some of the "throat-distempers" of the last century in New England were epidemic visitations of the same disease. It was described as observed in New England, in the years 1735–6, by William Douglas, M. D., under the name of *Angina Ulcusculosa;* and again as it prevailed in Elizabethtown, New Jersey, in 1734–5, and a few years later in Boston and Cambridge, Massachusetts, by Reverend Mr. Dickinson, of New Jersey.[1] The account of a similar disease which was published by Dr. Samuel Bard, of New York, in 1771 was quoted at length in the Report on the Topography and Epidemics of New York, submitted to this Association in the year 1860, by Professor Joseph M. Smith.

Of the 314 decedents by diphtheria, reported in Rhode Island between August, 1858, and December, 1862, almost exactly half, or 158, were under five years old, 93 were between five and ten, 40 were between ten and twenty, 12 between twenty and thirty, &c. There were 132 males and 182 females. The statistics may be

[1] A very interesting description by Mr. Dickinson is republished in Boston Medical and Surgical Journal, November 15, 1860.

thus summed up. It is a disease confined to no age, though much more common in children, or between the ages of one and fifteen; more frequent in females than males; causing a larger proportion of deaths in the American than in the foreign class; apparently more severe in the country than the city, and sometimes attacking particular towns, neighborhoods, or families with great severity; prevailing more in the cool months than the hot.

In the whole period under review, no cases of death by diphtheria were reported from Bristol County, which contains about 9000 inhabitants. Newport County, with a population of about 20,000, reported twenty deaths. Providence city, with its very complete registration, had 85 deaths in a population of about 50,000. Washington County, at the southwest part of the State, suffered much more severely. With a population of 18,715 in the year 1860, and with less complete returns than any other county, it had 123 deaths ascribed to diphtheria, viz., 1 in December, 1858; 25 in 1860; 62 in 1861, and 35 in 1862. Several instances occurred of two, three or four persons dying out of the same family, at short intervals.

Notwithstanding its being thus liable to local outbreaks, it is not believed to be very strongly contagious, if we have rightly gathered the opinions of the best observers. There is abundant evidence that it may be caught by inoculation with the effused matters. There is also good reason to believe that without proper ventilation the presence of cases will produce an infectious atmosphere, which, if concentrated, and favored by the condition of persons who are exposed to it, may breed new cases. But it appears to be less easily spread in this way than measles and scarlatina, perhaps not much more easily than typhoid fever. I have observed strong negative facts bearing on this question. In one instance, six colored children were unavoidably kept a good deal of the time for several days, in the two adjoining small rooms, partly underground, in which two adults were sick with diphtheria; and not one of these children was attacked. Such an escape would have been surprising, if the disease had been measles or scarlatina.

Our physicians, I believe, are pretty generally agreed on the main points in the treatment of diphtheria. It is believed to be caused by a poison acting on the blood, and producing a depressing effect, against which the strength of the system must be sustained. Hence a good diet, nutritious, compact, and easily digested, is necessary. Solid food should be softened, so as not to irritate the

throat in passing. Besides beef-tea, wine-whey, &c., I have found wine-jelly particularly soothing and useful. If sufficient nourishment cannot be swallowed, nutritive injections become important, in patients old enough to learn to retain them. Tonics and stimulants are the medicines most used; quinine, alcoholic liquids and certain compounds of chlorine, especially the tincture of chloride of iron, and chlorate of potassa. Locally, I believe the best practitioners do little with harsh applications, using astringent gargles, ice, and the chlorate of potassa in solution, either as a gargle, or with a brush, or in both ways. Claret-wine is much used, both as a drink and gargle. I have seen apparent benefit from a gargle of yeast. The deaths are caused, so far as I know, more by asthenia than asphyxia. Tracheotomy I think has not been performed for diphtheria in this State.

MEASLES.

The table of zymotic diseases shows that five-eighths of the deaths attributed to measles for eight years occurred in the year 1858. The only epidemic of this disease within that period began in December, 1857, and lasted through half the next year. More than half the deaths in 1858 were in Providence. In that city and the neighboring towns, measles prevailed very extensively, though generally in a mild form. There were probably several thousand cases in that city, according to the City Registrar. Most of the fatal cases were owing to complications or sequelæ, many deaths being ascribed to measles as the primary, and pneumonia, dysentery, or hydrocephalus, as the secondary cause. These were mostly owing to exposure, or neglect, from ignorance, imprudence or poverty. Measles accordingly differs from scarlatina or diphtheria in regard to the proportion of deaths caused by it in the two classes, American and foreign. Thus, in the year 1858, the parentage of 69 decedents by measles was specified: American, 19; foreign, 50.

In ten years and seven months, the deaths by measles have been 136; under five years of age, 118; between five and ten, 12; over twenty, 6;—males, 71; females, 64; sex unspecified, 1. In first quarter of the year, 39; in the second quarter, 46; third quarter, 41; fourth quarter, 10. In eight years, 42.50 per cent. of the deaths by measles recorded in the State occurred in Providence. Its variableness, as to fatality if not as to prevalence, is shown by the fact

that no deaths were reported in Providence in 1859 or 1860, and 40 deaths in 1858.

CHOLERA INFANTUM.

This is often spoken of as if it were a disease peculiar to cities and compact places. But as the term is used here, by physicians as well as others, it occurs in all parts of Rhode Island, though more common and fatal in the city than elsewhere. In eight years, 54 per cent. of all the deaths ascribed to cholera infantum reported in the State were in Providence. This excessive proportion in Providence was greater than the truth, since the registration is very complete there, and in those towns where it is imperfect the deaths of children are most apt to be left unrecorded. For the last three years, the deaths by cholera infantum in Providence were less than half of those in the State. The adjacent towns furnish their full share, and there is reason to think that the suburban parts of those towns, where crowded with the overflow of city-population, are more liable to summer-complaints than the city itself. Deaths by cholera infantum are reported from some strictly rural towns, where there are no considerable factory-villages. Cases in the city are wonderfully helped by being carried to country-air, many lives being saved in that way every year. But it appears that the country itself enjoys no immunity from the disease.

Cholera infantum is less variable in its prevalence than the zymotic diseases we have been considering, yet more so than the principal sporadic diseases. In 1860, it caused twice as large a proportion of the deaths as in 1859. It is well-known to be a disease of hot weather. In ten years there have been 890 deaths, of which 369 were in August, 228 in September, 178 in July, and 80 in October, leaving only 35 in all the other months.

We cannot give the subdivisions of age within which the deaths by this disease have fallen, for the whole State, as the State reports only divide the ages at death into periods of five years. In Providence, in eight years, ending with 1863, there have been 428 deaths, 252 of them in the first year of life, 146 in the second, and only 30 over the age of two. In the same 428 deaths, 155 were in the American and 273 in the foreign class; so that this disease shows the influence of parentage very obviously. The kindred complaints, cholera morbus, diarrhœa, and dysentery show like results; in the

same eight years, in Providence, there were 920 deaths by these four diseases; of American parentage, 374; of foreign parentage, 546.

DIARRHŒA AND DYSENTERY.

These affections are not distinguished clearly and constantly from cholera infantum and cholera morbus, many deaths being ascribed to "bowel-complaint." The Irish among us often call all these complaints dysentery. Both vary from year to year, or from season to season, more than most sporadic diseases do. Dysentery has more properly the character of a zymotic disease than diarrhœa; and the table shows that it varies more in its prevalence, in different years.

In ten years, the deaths by diarrhœa and dysentery were 1,114; in August, 379; in September, 274; in October, 167; in July, 126; leaving only 168 in the other eight months; in the first quarter of the year, 41; in second quarter, 44; third quarter, 779; fourth quarter, 250.

Most of the deaths attributed to these causes were in children. In the whole series of Rhode Island Reports, seven-tenths of these deaths were at ages under five (833 out of 1,187).

Just about half the deaths by these diseases were in Providence city, there being more deaths by diarrhœa in the city, and more by dysentery in other places. This is partly owing to more careful distinction enforced by the City Registrar. It depends in part on the common occurrence and occasional great fatality of dysentery in villages and country towns. The only two of the eight years included in our table when dysentery was charged with a large excess of deaths were 1855 and 1861; in both years, some other parts of the State had a higher percentage of deaths by dysentery than Providence. In 1861, a fatal form of dysentery was prevalent in some towns along the Pawtuxet River and its tributaries, in regard to which some particulars can be given.

In the communications of the Rhode Island Medical Society, for the year 1862, are extracts from letters addressed to the President of the Society by three physicians living in that region. They speak of sixty-nine cases that had occurred within their knowledge in August and September, 1861. Twelve of these cases were fatal; all the fatal cases but two having been wholly or partly under homœopathic treatment, and those two under unfavorable circum-

stances. One of the three physicians had not seen many more cases than usual. The views of these physicians as to the causes of autumnal dysentery in the range of their observation are so interesting as to be worth quoting.

Dr. A. C. Whitman, of Fiskeville, Scituate, writes: "I do not know of any local or exciting cause for this sickness, other than the sudden changes we experience along these fresh-water streams at this season of the year. We frequently have the mercury at 40° at sunrise, 80° at noon, and about 40° again in the evening."

Dr. D. H. Batchelder, of Knightsville, Cranston, writes: "The first cause to which I shall allude is this: the very great discrepancy between the temperature at 12 o'clock A. M., and 12 o'clock P. M., or of midday and midnight, cannot fail to produce or assist in producing very striking morbid changes in the human system. While the mercury has in many instances risen as high as 80° or 85° at midday, the same has fallen through the night to 38°, 40°, 45°, and 50°, showing a difference of from thirty to forty degrees, in the short space of twelve hours. I am well persuaded that in no one location, where it has been my lot to have the charge of the health department, has this one cause, during the whole number of years since I commenced the practice of medicine, been so favorable to the development of dysentery as in the summer and autumn of the year 1861.

"The second local cause of which I designed to say a word, is that of malaria. Since it is almost universally acknowledged that weather and season have a manifest influence in the production of dysentery, and that in temperate climates like our own it is an autumnal disease, I believe, as I think others must, that malaria plays a very conspicuous part in many localities in the development of epidemic dysentery. It may be in some cases and in some localities a remote cause, while in others it might be considered the exciting cause of the attack.

"I am very confident that six out of eight of all the cases of dysentery, that have occurred in my own practice the present season, have been among the families who were located upon the margin of some low, moist ravine, or near swampy, wet land, where the sun's rays disappear early, or some little time before nightfall."

In Providence, for ten years down to 1862, the four diseases known as cholera infantum, cholera morbus, diarrhœa, and dysentery, had, on the whole, lessened considerably, as causes of

death. In the five years ending with 1856, they averaged 147 deaths annually; in the five ending with 1861, they averaged but 103; in 1862, they caused 98 deaths in that city. Asiatic cholera was epidemic here in 1854, causing that year 159 deaths in the city. These are not included in the above statement, but the epidemic prevalence of cholera was accompanied by an increased number of deaths from these other forms of flux.

At the annual meeting of the Rhode Island Medical Society, in June, 1864, Dr. Henry E. Turner, of Newport, read an interesting statistical account of the epidemic of typhoid dysentery in Newport, in the autumn of 1863. He has kindly permitted me to make use of this paper, which will be published in full in the Communications of the Society.

The disease appears to have been confined to certain localities, which were limited and pretty well defined; and these were not the localities where it might have been most expected. "It was a very different quarter of the city, and a very different class of people who suffered, from those who were visited by the cholera in 1854. It was not, as in that case, the poor and foreign population, surrounded by privation and filth and bad drainage and negligence; but it was the well-to-do people in the central and respectable streets who were the victims." At the asylum, at Coaster's Harbor Island, in a community of about sixty or seventy members, there were seven deaths, between August 29th and October 19th; most of the victims being feeble or diseased persons, four of them aged 65 or more, and three less than two years old. The island on which the asylum stands is dry, elevated, and airy. At Fort Adams, on the opposite side of the harbor, in a garrison of about 150 men, living the life of soldiers in garrison, and sleeping in crowded casemates, no case of dysentery occurred.

Dr. Turner says: "The prevailing wind during the summer of 1863, instead of being as it usually is, from the southwest, was from the east; and the weather was damp and the heat oppressive, in a degree very seldom experienced in Newport. The declivity upon which most of the city is built fronts the west; and of course the southwest winds coming directly from the sea, and generally blowing hard for several hours every day, ventilate the streets and yards very thoroughly, whereas the town is almost entirely sheltered from easterly winds, and during their prevalence we are unconscious of any wind at all."

At other places along the Bay, the sultry and damp weather of

August, 1863, was followed by a large number of cases of dysentery and other forms of bowel-complaint. In Providence, where, as we have mentioned, the deaths by these diseases had lessened for some years, they were much more numerous in that year. The deaths by cholera infantum, cholera morbus, diarrhœa, and dysentery, in Providence, were 183 in 1863, or 85 more than in 1862, and 80 more than the average of five years ending with 1861.

TYPHOID AND TYPHUS FEVER.

These two forms of fever are not distinguished with enough accuracy to be kept apart in a tabular summary, and there has been no epidemic of ship, or camp-fever within the eight years included in our review, so that most of these deaths must be attributed to our endemic typhoid fever. We have included also those which the records ascribe to "fever," simply. The most striking points in the statistics of typhoid fever are these: it is more common, or more fatal, in the country-towns than in the city; it attacks young adults more than any other age, differing in this respect from any other prominent zymotic, except Asiatic cholera and (necessarily) puerperal fever; it is more destructive in the fourth quarter than in any other. Of all the deaths in the Rhode Island Reports ascribed to typhoid and typhus, more than half were at ages between fifteen and forty, amounting to far more deaths at that period of life than were caused by any other disease, except consumption. In ten years, forty per cent. of these deaths were in the last quarter of the year. The disease is very commonly called *autumnal* or *fall* fever.

Of the 600 deaths from typhoid and typhus in our table of zymotics, 220, or 36.67 per cent. were in the city of Providence, leaving 63.33 per cent. in other parts of the State. This is in accordance with facts observed generally in New England, country-towns being more liable to typhoid fever than cities. In no part of the State do we note any extraordinary fatality from this source. From information derived from physicians, we are disposed to believe that it is more common in Washington County than in most parts of the State. Some who have practised long in that county have seen a good many cases every autumn. They have found the disease severe, and liable to dangerous complications, among which hemorrhage from the bowels has been quite frequent.

The paper of Dr. Henry E. Turner, already referred to, gives an account of cases of typhus fever in Newport, in the spring of 1864, which we quote, it being a memorable narrative of a local epidemic of typhus.

"During the months of March, April, and May of this year, a very remarkable epidemic has developed itself, at Coaster's Harbor Island, chiefly affecting the pauper inmates, although not exclusively. As I before said, the community there consists of from sixty to seventy individuals; and during the period I have mentioned eleven persons have died, making about 16 per cent. of the whole, which would be a frightful rate of mortality by itself; but when we consider that the dysentery of the previous autumn removed 10 per cent. from the same institution, the result is absolutely astounding; it being one quarter of a whole community dying of epidemic disease in what has always been regarded as the healthiest locality on the face of the earth, in the lapse of little more than half a year.

"The origin of this last visitation was the bringing to the Asylum of a family of colored persons, who had been living in a poor neighborhood, in filth and squalor and debauchery, without sufficient food or clothing or fuel, so that the woman was absolutely frost-bitten in her bed. Three of them had what was manifestly typhus fever, at the time of their introduction, although, strange to say, they all recovered. From that time, as if by contagion, the disease attacked a large proportion of those exposed, most of whom being old and decrepit, or insane, or infirm from other causes, seemed to have no power of resiliency, and succumbed, without generally very aggravated symptoms. Those who were young, and possessed of any degree of vigor, generally recovered.

"In most of the cases, the disease was marked by a small and feeble pulse, somewhat accelerated, but not extremely so; the skin was hot and dry, the urine scanty and high colored. Instead of the irritable bowels usually seen in cases of fever with us, attended by copious and frequent dejections, there were no evacuations at all, unless urged by cathartics and enemata. The tongue was generally dry, but not coated with sordes, nor were the lips and teeth. There was a singular absence, in the most severe cases, of grave cerebral symptoms; the depression in fact was disproportioned to any indications. This may possibly be accounted for by the circumstance that the facilities for ventilation in the house are not very good; and the disinclination of the inmates to allow any

access of fresh-air which they can avoid is an insuperable obstacle to the keeping open of the doors and windows. There being no hospital building, the sick are in different places, not separated from the rest, which fact undoubtedly caused much of the mortality."

Dr. Turner gives the names and ages of ten inmates of the Asylum who died; seven were aged over fifty, and the youngest was thirty-five; four were insane, two were inebriate, one was idiotic, and one paralytic; only two were females.

In Providence, in eight years ending with 1863, there were 232 deaths by fevers, including typhoid, typhus, bilious, &c.; and of these decedents, 151 were of American parentage, and 81 of foreign parentage.

REPORT

ON

MORTALITY OF THE CITY OF NEW YORK.

BY

CYRUS RAMSAY, M. D., LL.B.

REGISTRAR OF RECORDS AND STATISTICS.

REPORT ON MORTALITY OF THE CITY OF NEW YORK.

THE following is a correct exhibit of the mortality of the city of New York from 1850 to 1864.

The value of vital statistics in determining the sanitary condition of a locality as well as indicating the existence and character of disease cannot be too highly estimated; when correct, are of as much importance to the scientific investigator as the interest table to the financier.

Objections are raised by some, upon the grounds that death certificates written by irregular physicians are received. Is the diagnosis of our most learned always clear?

When we have the exact number of deaths in a certain period, of a given population, with the ages, sex, place of birth, etc., a basis is formed for calculations that cannot be erroneous. In this regard New York is not surpassed, for in addition to our stringent laws it is to all intents a walled city, being surrounded by waters that cannot be crossed, except by boats or bridges. All these outlets are strictly guarded by persons whose position, according to laws of thirteen years' standing, render them liable to a penalty of two hundred dollars should they permit a corpse to pass out without a permit from the City Inspector, and inasmuch as these permits are obtained in every case before the body is moved, and never except a certificate signed by a physician or coroner is produced, we must necessarily have a correct report; and further, these certificates are always retained by the Registrar of Records and Statistics for the purpose of registration and to exhibit the mortality in weekly and annual statements.

I have referred to our method of procuring mortuary statistics for the following reasons: 1st. Correct statistical tables are seldom found elsewhere in this country. 2d. To refute assertions made by certain uninformed and biased individuals, that more persons die in New York than appear in the annual reports; and 3dly, to

inspire confidence in the minds of scientific investigators who may refer to them. Cities are usually referred to in discussing medical subjects, for large cities represent the civilization of the age; here masses of mankind are subject to certain influences that tax the human organism to an extent found nowhere else; it is the developments and results of multitudes of persons congregated and living in close proximity that tests the theories of sanitary science and of the healing art. We must not take a single season as a criterion, but a series of years, carefully comparing the circumstances and results of various periods; in this way correct deduction can be made.

What subject would be more interesting to the investigator of the diseases of this day and their therapeutics, had he before him the exact causes of death, the population and the total mortality, with the ages, sex, etc., of the cities of Greece, Rome, and others even more ancient? The loss is irreparable, but the observations now taken in the great cities and some countries of the present period, in London, Paris, Berlin, Vienna, St. Petersburg, New York, and Philadelphia, also Great Britain, France, Austria, Germany, etc., disclose the general circumstances of their population, supply exact facts and suggest means for improving the condition under which the human race lives, and transmits its life to successive generations. Some of these results were pointed out at the time when the facts were first observed, or in the annual reports, and others will undoubtedly be elicited by future investigations.

From the little items occasionally found recorded in the history of remote ages, the waste of life was appalling; frightful epidemics occurred at certain periods that seemed to wrap the whole earth in a mantle of death; entire kingdoms were swept away by diseases that for a time consumed human life like a burning flame strewing empires with the slain. During these fearful times the practice of medicine was performed mostly by priests and impostors of every conceivable cast, using the most disgusting agents, charms, incantations, amulets, etc., etc.; superstition and credulity reigned supreme. It is said the healing art was practised with some degree of success as early as the thirteenth century; but it could no more stay the destructive march of disease and death than a pebble can the mighty waters of Niagara.

Whether the vast army of medical men of the present day, with all the lights of science and the immense resources at their command, could combat and beat back the surging waves of the fearful

epidemics of the times referred to, is a question worthy of our earnest consideration, for, epidemics of various degrees of malignancy do, and always have occurred in cycles or intervals, with wonderful regularity, and may not one similar to the Plague or Black Death of the thirteenth, fourteenth, and fifteenth centuries, take place in the present one, or shall we regard the modification of the intensity of disease that has prevailed for the last hundred years an indication that there is actually a radical change in the physical laws of nature and the mysterious agents that have as yet baffled human skill, or is it one of the grand cycles or periods of salubrity in the annals of Eternity?

The following tables indicate the mortality of a sufficient number of years to show the status of the health of New York; the longer the period, however, the greater the opportunity will be for ascertaining what changes actually take place in the character of disease generally, the results of sanitary regulations, periods of epidemics, etc., etc.

Why so necessary a measure, as the registration of all the marriages, births, and deaths, was so long delayed, is a matter of surprise; it was not done until 1830 in Paris, 1837 in London, 1851 in New York, and 1861 in Philadelphia.

A Table showing the Population in each Year, in the city of New York, from 1849 *to* 1864; *the Increase per annum; also the number of Deaths in each year, and the number that would have died, had the Mortality increased in the same ratio as the Population.*

Year.	Population in each year.	Increase population per year.	Deaths per year.	Number of deaths there would have been had the mortality increased with the population.
1850	515,550	.....	.....	.....
1851	536,400	20,850	21,748	.....
1852	558,412	21,712	20,296	22,637
1853	581,018	22,606	21,137	23,548
1854	604,614	23,596	26,953	24,504
1855	627,000	24,386	21,478	25,493
1856	656,654	27,654	20,102	26,613
1857	638,404	31,750	21,775	27,871
1858	724,808	36,404	22,196	29,346
1859	766,392	41,584	21,645	31,031
1860	813,699	47,885	22,710	32,900
1861	866,280	52,000	22,117	34,227
1862	923,200	57,000	21,244	35,542
1863	1,000,000	76,800	25,196	38,560

A Table showing the total Deaths from 1851 *to* 1863, *both inclusive, also the number of Adults and Children who died in the same period.*

Year.	Deaths.	Adults.	Children.	Children under 1 year.
1851	21,748	7,775	13,973	6,891
1852	20,296	8,002	12,294	6,351
1853	21,137	8,124	13,003	6,661
1854[1]	26,953	10,681	16,271	7,551
1855	21,478	7,289	14,189	6,771
1856	20,102	6,769	14,889	6,437
1857	21,775	7,558	14,217	6,905
1858	22,196	8,091	14,105	7,109
1859	21,645	8,182	13,463	6,599
1860	22,710	8,752	13,958	6,087
1861	22,117	8,503	13,614	6,189
1862	21,244	8,618	12,626	5,720
1863	25,196	10,596	14,600	6,118

This table shows a very large diminution in the mortality of children in 1863, when compared with 1850, *i. e.*, when the vast increase of population is considered, it being twice as great in 1863 as then, yet the number of deaths is nearly the same in the two periods, and but little variation in any year except the cholera year.

Mortality of Adults, and Children under one year of age, in the months of July and August, from 1855 *to* 1864.

Months.	Year.	Adults.	Children under 1 year.
July	1856	603	1,128
"	1857	576	884
"	1858	605	1,302
"	1859	682	1,047
"	1860	703	840
"	1861	679	936
"	1862	727	880
"	1863	868	959
August	1856	572	1,173
"	1857	672	1,270
"	1858	679	1,262
"	1859	759	1,037
"	1860	783	840
"	1861	751	903
"	1862	852	869
"	1863	1,263	1,029

[1] Cholera.

A Table showing the Mortality of Adults and Children in the Months of June, July, and August, from 1857 *to* 1863.

Months.	Year.	Total deaths.	Adults.	Children.
June	1858	1,655	670	985
"	1859	1,515	551	964
"	1860	1,463	617	846
"	1861	1,695	663	1,032
"	1862	1,493	663	830
"	1863	1,752	769	1,019
July	1858	2,878	605	1,987
"	1859	2,418	682	1,736
"	1860	2,096	665	1,411
"	1861	2,345	679	1,666
"	1862	2,274	727	1,547
"	1863	2,682	868	1,814
August	1858	2,878	679	2,199
"	1859	2,754	759	1,995
"	1860	2,413	756	1,657
"	1861	2,444	751	1,693
"	1862	2,527	852	1,675
"	1863	3,417	1,263	2,154

A Table showing the Mortality of Adults and Children in the Months of June, July, and August, from 1857 *to* 1864.

Months.	Year.	Total deaths.	Adults.	Children.	Children under 1 year.
June	1858	1,655	670	985	575
"	1859	1,515	551	964	505
"	1860	1,463	617	846	363
"	1861	1,695	663	1,032	445
"	1862	1,493	663	830	376
"	1863	1,752	769	983	407
July	1858	2,878	605	1,987	1,302
"	1859	2,418	682	1,736	1,047
"	1860	2,096	665	1,411	815
"	1861	2,345	679	1,666	936
"	1862	2,274	727	1,547	880
"	1863	2,672	868	1,814	959
August	1858	2,878	679	2,199	1,264
"	1859	2,754	759	1,995	1,037
"	1860	2,413	756	1,657	888
"	1861	2,444	751	1,693	903
"	1862	2,527	852	1,675	869
"	1863	3,417	1,263	2,154	1,029

A Table showing the Deaths influenced by Season.

MORTALITY IN THE SUMMER MONTHS, IN EACH YEAR, FROM 1850 TO 1864.

Months.	1851	1852	1853	1854	1855	1856	1857	1858	1859	1860	1861	1862	1863
June . .	1717	1790	1906	1931	1553	1489	1462	1655	1515	1463	1695	1493	1752
July . .	2521	2470	2333	4124	2515	2413	2021	2592	2418	2096	2345	2274	2682
August .	2155	2260	2814	4187	2614	2633	2821	2878	2754	2413	2244	2527	3417

DEATHS BY CHOLERA INFANTUM IN THE SUMMER MONTHS, IN EACH YEAR, FROM 1857 TO 1864.

Months.	1858	1859	1860	1861	1862	1863
June . . .	36	132	51	39	42	48
July . . .	534	502	369	399	409	546
August . . .	665	461	478	487	528	694
Total . .	1235	1095	898	925	979	1288

DEATHS BY DIARRHŒA IN THE SUMMER MONTHS IN EACH YEAR, FROM 1854 TO 1864.

Months.	1855	1856	1857	1858	1859	1860	1861	1862	1863
June . .	25	30	15	31	28	22	21	43	36
July . .	141	114	78	131	119	78	96	78	133
August .	219	139	157	148	174	108	122	117	200
Total .	985	283	250	310	321	208	239	238	369

All the preceding tables show a diminution in the number of deaths in the different periods indicated; but when the vast increase of population is considered, the decrease is rendered more conspicuous; it must be borne in mind that a large amount of this addition is due to emigration, and that this circumstance unavoidably augments our bills of mortality. The reasons are so apparent that an explanation would seem to be superfluous. The impression which has existed for several years in regard to the health of New York, was produced in part by the fact that in no other large city in America was a full report of all the deaths given, and further, evil-inclined and ignorant persons persisted in making comparisons with cities where the registration laws were extremely defective; measuring the mortality with some New England village perhaps; all of which are unjust and preposterous, yet it has been done over and over again. A careful examination even of the few tables contained in this paper will, in my opinion, convince any candid person that the general health is not bad, on the contrary, that it is as good as in any other city in the world.

Deaths in June, of each year, from 1853 *to* 1864, *by the following Diseases.*

	1854	1855	1856	1857	1858	1859	1860	1861	1862	1863
Totals	1931	1553	1487	1462	1655	1515	1463	1695	1493	1752
Males	1063	809	792	804	881	852	773	918	846	922
Females	868	744	695	658	774	663	690	777	647	830
Adults	810	484	503	492	670	551	964	661	663	769
Children	1121	1069	984	970	985	964	846	1034	830	983
Children under 1 year	598	524	556	538	575	505	358	465	376	407
Apoplexy	33	13	20	13	19	22	1	22	27	24
Bronchitis	16	22	13	10	21	19	20	28	13	26
Cancer	12	22	20	18	13	19	20	19	11	17
Consumption	238	154	160	184	228	252	215	238	234	260
Croup	38	39	32	56	16	32	28	10	30	15
Cholera infantum	58	36	43	17	36	502	51	39	42	48
Convulsions, infantile	156	144	109	102	152	221	106	117	98	168
Diarrhœa	53	25	30	15	31	119	22	21	43	36
Dropsy of head	73	71	67	62	80	91	50	67	51	57
Drowned	30	20	16	28	21	22	29	28	18	31
Delirium tremens	15	6	4	4	11	8	7	11	5	8
Dysentery	27	28	15	10	11	56	6	10	9	15
Erysipèlas	9	13	9	11	11	9	2	12	6	7
Marasmus	113	76	76	95	91	195	105	96	85	96
Measles	27	40	46	16	16	45	10	83	8	27
Puerperal fever	5	8	16	10	14	11	13	13	8	7
" convulsions	1	...	1	2	1	...	...	...	...	1
Scarlet fever	22	90	73	85	57	54	152	114	63	87
Scrofula	20	13	5	11	12	13	7	8	4	5
Smallpox	23	10	38	34	53	2	18	78	15	13
Suicide	5	8	4	8	10	3	7	4	3	4
Heart, disease of	13	20	17	16	38	46	33	15	21	23
Hooping-cough	18	16	8	10	15	25	12	10	10	7
Hip, disease of	...	...	...	1	...	...	1	...	2	...
Inflammation of bowels	26	24	25	24	21	42	24	29	44	38
" brain	28	34	29	39	31	43	36	43	34	55
" lungs	62	60	47	52	66	59	66	92	68	78
" stomach	6	5	7	3	5	14	5	14	15	11
" throat	6	3	3	4	3	5	2	5	3	5
Insanity	1	1	1	...	3	1	...	...	1	1
Old age	10	18	14	7	15	17	11	17	19	22
Typhoid fever	10	7	12	8	12	18	16	13	48	33
Typhus fever	29	24	12	13	2	8	4	16	13	46

The above table exhibits the total mortality in June for ten consecutive years; also the males, females, adults, children, and children under one year of age; as well as the total deaths from the most prevalent diseases. There was during the period but little variation, nearly the same number dying each year, except in a few instances, as, for example, there were more deaths in 1854 than in 1863, while the increase of population is estimated at 33 per cent.

Deaths in July, of each year, from 1853 *to* 1864, *by the following Diseases.*

	1854	1855	1856	1857	1858	1859	1860	1861	1862	1863
Totals . . .	4124	2515	2413	2021	2592	2418	2076	2345	2274	2682
Males	2229	1380	1315	1114	1374	1347	1115	1223	1205	1456
Females	1895	1135	1098	907	1218	1071	961	1122	1069	1226
Adults	1610	614	1017	576	605	682	665	679	724	868
Children	2514	1901	1396	1445	1987	1736	1411	1666	1550	1814
Children under 1 year .	1401	1204	714	884	1302	1047	815	936	880	959
Apoplexy	29	23	17	16	8	22	28	28	10	28
Bronchitis	15	17	10	17	26	19	17	23	21	12
Cancer	19	15	15	18	21	19	10	10	18	15
Consumption . . .	239	202	162	190	248	252	241	211	272	248
Croup	34	27	28	36	18	32	24	19	26	26
Cholera infantum .	550	416	483	225	534	502	369	399	409	546
Convulsions, infantile .	356	277	173	150	230	221	173	154	172	199
Diarrhœa	200	141	114	78	131	119	78	96	78	133
Dropsy of head . . .	149	110	81	86	109	91	76	101	88	92
Drowned	25	28	29	21	31	22	24	30	31	50
Delirium tremens .	17	10	6	9	10	8	17	10	11	16
Dysentery	157	81	65	30	51	56	30	42	19	43
Erysipelas	11	3	7	8	11	9	6	10	7	7
Marasmus	207	174	155	162	206	195	173	190	161	174
Measles	40	32	64	32	16	45	18	50	16	32
Puerperal fever . . .	12	7	9	6	13	11	4	10	7	3
" convulsions .	4	3	5	4	1	...	...	...	...	...
Scarlet fever . . .	27	69	73	69	27	54	89	88	67	67
Scrofula	24	7	11	13	16	13	10	9	5	3
Smallpox	14	14	23	15	22	2	21	73	13	6
Suicide	12	9	8	2	7	3	4	4	4	4
Heart, disease of . .	19	18	21	24	29	46	23	21	21	29
Hooping-cough . . .	26	31	18	15	25	25	12	9	18	5
Hip, disease of . . .	6	5	2	3	...	...	...	...	1	...
Inflammation of bowels .	38	37	39	24	35	42	33	55	63	54
" brain .	65	44	48	47	58	43	40	60	51	72
" lungs .	47	28	26	51	58	59	59	77	60	79
" stomach .	12	9	14	13	16	14	19	11	19	10
" throat .	8	5	1	3	1	5	7	14	14	2
Insanity	3	2	...	1	1	1	2	...	1	1
Old age	16	15	15	20	8	17	16	16	22	30
Typhoid fever . . .	9	7	7	8	9	13	13	15	49	56
Typhus fever . . .	40	8	19	6	11	8	11	16	7	41

This month shows the same decrease in the mortality as the preceding one. In 1854 the deaths of children were 2,514; in 1863, 1,814; children under one year of age in 1854, 1,401; in 1863, 959; increase of population 395,386. Few large cities, if indeed any one in the world, can show a lower bill of mortality than is here presented in these monthly tables.

Deaths in August, of each year, from 1853 *to* 1864, *by the following Diseases.*

	1854	1855	1856	1857	1858	1859	1860	1861	1862	1863
Totals	4187	2614	2630	2821	2878	2754	2413	2444	2527	3417
Males	2175	1379	1355	1539	1443	1444	1272	1314	1324	1800
Females	2012	1235	1275	1282	1435	1310	1141	1130	1203	1617
Adults	1555	554	563	672	779	759	756	751	852	1273
Children	2632	2060	2067	2149	2099	1995	1657	1693	1675	2144
Children under 1 year	1318	1168	1173	1270	1262	1037	888	903	869	1029
Apoplexy	21	15	9	23	20	27	22	17	24	46
Bronchitis	11	12	12	23	13	11	11	17	36	19
Cancer	11	14	15	16	19	19	15	12	25	26
Consumption	216	202	196	230	229	308	271	249	270	310
Croup	36	21	19	24	18	34	22	21	36	19
Cholera infantum	597	451	588	623	665	461	478	487	528	694
Convulsions, infantile	239	184	149	194	106	189	185	144	183	219
Diarrhœa	286	219	139	157	148	174	108	122	117	200
Dropsy of head	132	100	112	101	113	109	97	91	98	91
Drowned	36	28	24	30	22	20	23	31	25	40
Delirium tremens	15	5	10	8	6	11	15	4	5	10
Dysentery	205	146	117	78	93	53	43	61	41	83
Erysipelas	9	8	4	7	4	11	5	8	4	9
Marasmus	289	267	271	293	286	290	205	267	204	247
Measles	30	29	36	43	19	60	21	32	19	21
Puerperal fever	6	3	6	9	9	7	17	12	8	5
" convulsions	5	3	1	1	1	1	...	...	...	2
Scarlet fever	12	41	42	42	20	59	88	56	27	42
Scrofula	16	14	19	12	23	11	7	5	8	2
Smallpox	16	5	28	11	23	2	32	42	10	7
Suicide	1	3	3	5	8	5	7	2	6	4
Heart, disease of	20	20	17	15	36	34	29	22	27	40
Hooping-cough	52	83	36	32	63	56	14	16	28	13
Hip, disease of	3	1	2	...	1	...	...	1	2	...
Inflammation of bowels	37	26	40	42	36	30	27	56	61	63
" brain	68	35	23	40	50	44	63	67	66	101
" lungs	50	31	33	59	64	46	52	57	45	90
" stomach	9	9	18	19	14	14	19	13	16	20
" throat	4	4	2	2	3	12	6	12	4	3
Insanity	1	...	1	1	1	...	1	...	1	...
Old age	17	15	19	17	12	21	32	20	28	20
Typhoid fever	9	11	12	15	23	21	22	16	48	54
Typhus fever	38	15	25	15	16	13	13	28	7	51

In August we have the greatest mortality among children, produced in a great measure through atmospheric influences, eating unripe fruit, &c. &c. Indeed, these influences affect persons of every age, developing diseases of the bowels, &c., yet the mortality is not excessive, indeed it is very low: 200 deaths of diarrhœa in a population of 1,000,000, in a densely populated city, is a remarkably small number. The same can be said of dysentery, cholera infantum, cholera morbus, gastritis, enteritis, etc.

Total Deaths per Week, in each Year, from 1853 *to* 1864.

Weeks.	1854	1855	1856	1857	1858	1859	1860	1861	1862	1863
1st	481	471	367	407	387	391	470	327	382	320
2d	488	413	314	429	425	366	480	425	370	433
3d	520	467	324	425	422	411	516	414	413	467
4th	442	437	375	472	454	431	502	403	391	470
5th	491	511	335	473	437	423	457	367	389	423
6th	496	435	377	491	443	445	455	366	422	416
7th	537	550	377	437	473	401	507	409	403	488
8th	484	521	387	488	503	372	542	390	400	455
9th	484	532	380	450	465	424	446	403	424	426
10th	453	591	396	448	515	434	414	398	456	441
11th	480	515	434	449	467	409	426	397	435	442
12th	513	456	301	456	476	419	509	412	417	435
13th	436	493	421	459	446	426	431	406	406	445
14th	508	441	416	445	435	378	491	434	455	429
15th	460	479	433	411	464	401	422	384	393	471
16th	428	479	387	438	466	405	461	418	395	450
17th	477	344	372	397	453	366	451	423	377	450
18th	401	493	343	393	407	397	367	386	401	517
19th	434	431	364	452	399	337	422	410	413	422
20th	394	457	362	392	392	363	402	381	369	491
21st	359	396	324	430	430	366	472	416	404	437
22d	415	399	322	383	374	357	405	391	340	347
23d	408	356	387	425	404	360	413	375	315	350
24th	429	353	337	372	401	352	480	387	335	406
25th	437	322	309	353	402	389	474	353	341	390
26th	517	341	324	337	350	451	514	455	361	407
27th	761	547	372	324	347	398	524	393	336	396
28th	817	497	393	311	607	597	549	532	553	467
29th	915	591	382	424	698	527	504	530	588	668
30th	1139	669	531	374	679	632	654	585	568	684
31st	1149	576	631	471	695	710	497	698	685	722
32d	1050	592	747	531	638	661	472	548	520	970
33d	922	633	627	551	657	616	496	522	536	859
34th	832	585	651	636	592	614	442	454	530	663
35th	822	548	567	700	583	625	431	438	520	623
36th	732	501	562	613	553	500	393	447	408	565
37th	681	503	505	675	447	558	390	374	410	487
38th	597	396	476	671	442	349	414	347	499	467
39th	612	355	461	609	441	336	385	398	457	447
40th	516	375	431	560	433	366	422	378	370	448
41st	482	386	389	442	420	420	377	386	386	420
42d	447	341	355	453	430	486	372	401	353	421
43d	478	361	370	410	360	481	338	391	340	438
44th	399	363	366	427	348	411	409	417	329	428
45th	404	291	401	401	361	381	369	392	309	428
46th	356	307	358	373	351	399	314	397	344	453
47th	359	350	395	382	383	417	356	332	318	443
48th	350	335	395	320	376	402	357	385	352	479
49th	453	368	410	413	351	361	335	401	320	400
50th	385	346	397	354	365	372	360	429	351	503
51st	389	329	462	351	345	464	362	359	330	476
52d	446	337	373	393	400	441	358	365	363	487

Deaths of Adults, in each Week, from 1853 *to* 1864.

Weeks.	1854	1855	1856	1857	1858	1859	1860	1861	1862	1863
1st . . .	160	212	113	147	169	159	171	154	163	143
2d . . .	195	142	111	140	151	149	189	190	151	182
3d . . .	190	164	99	140	141	174	182	172	168	227
4th . . .	162	153	130	153	144	190	166	164	165	194
5th . . .	165	172	109	153	154	161	183	163	165	178
6th . . .	156	150	115	149	139	178	159	145	163	160
7th . . .	193	194	121	146	181	148	192	162	185	219
8th . . .	173	188	127	159	151	142	206	157	196	165
9th . . .	178	222	113	145	156	146	154	189	168	179
10th . . .	157	183	145	167	166	169	188	163	202	182
11th . . .	149	179	128	148	183	170	156	156	196	182
12th . . .	176	175	129	140	174	153	158	168	177	222
13th . . .	188	188	155	154	173	170	161	168	165	201
14th . . .	192	139	138	152	155	159	168	181	186	165
15th . . .	159	166	150	157	160	158	189	155	172	224
16th . . .	165	165	129	140	184	193	169	175	189	195
17th . . .	178	119	139	140	165	148	230	185	175	227
18th . . .	159	160	127	178	154	137	190	168	176	173
19th . . .	183	150	122	148	169	148	202	194	207	205
20th . . .	143	179	127	169	163	165	156	179	167	233
21st . . .	129	141	118	140	177	166	177	176	186	197
22d . . .	179	139	91	176	198	145	141	172	149	170
23d . . .	189	121	118	159	155	141	146	151	156	162
24th . . .	187	106	102	129	166	150	171	159	151	190
25th . . .	187	94	116	127	144	126	143	163	159	158
26th . . .	201	99	130	108	144	183	166	196	160	187
27th . . .	303	176	131	107	192	147	164	131	141	174
28th . . .	305	105	102	141	146	167	162	166	192	168
29th . . .	336	142	140	138	133	160	146	175	177	257
30th . . .	478	149	156	126	127	158	153	156	141	229
31st . . .	441	153	174	192	162	160	176	172	165	192
32d . . .	416	113	140	151	150	184	222	229	170	386
33d . . .	317	139	124	137	161	189	161	151	281	328
34th . . .	298	106	126	183	157	163	159	161	175	237
35th . . .	283	136	124	151	154	152	167	147	174	240
36th . . .	306	120	138	163	159	191	178	172	163	199
37th . . .	259	121	136	155	162	164	167	157	193	198
38th . . .	223	114	122	159	141	166	185	139	151	195
39th . . .	235	109	140	159	159	139	200	130	173	210
40th . . .	192	127	121	144	171	205	196	166	158	219
41st . . .	196	130	134	179	159	167	180	155	193	206
42d . . .	182	126	146	143	149	172	189	158	148	191
43d . . .	194	130	133	161	150	169	173	165	144	930
44th . . .	159	141	149	158	143	173	185	146	152	208
45th . . .	172	101	139	158	....	190	145	166	158	216
46th . . .	132	114	125	157	157	177	168	169	168	222
47th . . .	131	121	138	129	176	192	160	172	141	220
48th . . .	153	116	137	173	166	143	195	150	156	248
49th . . .	166	149	139	179	151	167	162	165	143	207
50th . . .	147	118	153	147	165	170	172	189	161	177
51st . . .	132	121	125	136	145	162	174	194	147	245
52d . . .	169	114	129	147	183	127	157	157	169	209

Deaths of Children, in each Week, from 1853 *to* 1864.

Weeks.	1854	1855	1856	1857	1858	1859	1860	1861	1862	1863
1st . . .	321	259	254	282	261	232	286	223	219	177
2d . . .	288	271	203	285	236	217	213	235	219	151
3d . . .	339	303	225	321	284	237	334	242	245	240
4th . . .	280	284	245	315	279	241	314	239	225	276
5th . . .	326	339	226	338	300	262	287	204	224	245
6th . . .	340	333	262	288	298	272	296	221	259	256
7th . . .	344	356	256	292	262	253	315	247	218	219
8th . . .	311	333	260	291	322	230	334	233	204	290
9th . . .	306	310	267	303	374	278	327	214	256	247
10th . . .	296	308	249	282	299	265	321	235	254	259
11th . . .	331	336	306	308	332	239	270	241	239	260
12th . . .	337	281	232	319	290	266	256	244	240	213
13th . . .	248	305	266	291	303	256	285	238	241	244
14th . . .	316	302	278	259	291	219	275	253	269	264
15th . . .	296	313	283	281	275	243	272	229	221	247
16th . . .	263	314	258	257	282	212	253	243	206	251
17th . . .	299	225	233	253	234	218	261	237	202	290
18th . . .	242	333	316	274	258	230	215	218	225	262
19th . . .	251	281	242	244	261	231	270	216	206	217
20th . . .	252	278	235	261	240	198	246	202	202	258
21st . . .	229	253	204	243	225	200	245	240	218	240
22d . . .	230	260	196	249	244	212	226	219	191	177
23d . . .	229	235	219	248	219	219	189	224	159	188
24th . . .	242	247	207	234	235	248	189	228	184	216
25th . . .	306	228	208	207	206	226	188	190	182	232
26th . . .	316	242	242	216	202	266	196	259	201	220
27th . . .	459	371	262	204	255	310	267	262	198	222
28th . . .	512	392	280	283	296	430	240	399	361	299
29th . . .	579	449	391	236	420	454	350	357	409	406
30th . . .	661	520	475	315	480	458	351	374	358	455
31st . . .	707	423	572	409	536	440	321	413	292	530
32d . . .	629	479	487	400	529	477	432	469	398	584
33d . . .	601	494	527	499	534	521	311	397	404	531
34th . . .	539	479	441	617	491	469	390	361	345	426
35th . . .	541	412	438	462	503	429	357	307	362	383
36th . . .	426	381	367	512	423	367	336	266	367	3 6
37th . . .	426	382	340	516	426	317	307	290	336	289
38th . . .	275	282	339	450	300	320	295	235	257	272
39th . . .	372	246	291	401	274	281	213	217	237	237
40th . . .	324	248	268	298	249	295	236	232	212	229
41st . . .	306	256	221	279	271	199	205	223	193	214
42d . . .	265	215	224	267	211	194	225	228	205	230
43d . . .	284	231	233	266	198	203	217	236	196	208
44th . . .	240	222	252	243	218	188	211	245	177	220
45th . . .	233	193	219	215	226	212	176	251	151	212
46th . . .	212	229	270	225	194	239	176	223	176	231
47th . . .	226	229	257	191	207	207	209	225	172	223
48th . . .	215	219	273	231	210	238	274	182	196	231
49th . . .	288	219	258	234	200	244	176	220	177	193
50th . . .	238	228	289	207	200	250	200	212	190	230
51st . . .	239	208	248	215	200	279	203	235	183	258
52d . . .	274	217	278	246	217	222	199	202	199	272

Deaths of Children under 1 *Year, in each Week, from* 1853 *to* 1864.

Weeks.	1854	1855	1856	1857	1858	1859	1860	1861	1862	1863
1st . . .	164	142	124	130	144	130	115	90	78	54
2d . . .	149	134	96	133	124	130	113	102	90	91
3d . . .	159	161	119	145	142	133	124	105	94	92
4th . . .	157	152	114	159	139	119	111	104	84	100
5th . . .	180	179	129	187	152	157	108	89	93	84
6th . . .	181	176	137	147	144	152	117	98	114	100
7th . . .	176	184	149	150	134	136	122	108	88	105
8th . . .	168	171	142	147	160	130	131	99	78	109
9th . . .	168	155	144	163	177	114	113	88	111	98
10th . . .	154	158	129	138	168	144	121	94	124	106
11th . . .	170	169	145	162	157	148	92	94	110	101
12th . . .	200	133	111	140	140	136	94	110	110	86
13th . . .	168	154	141	151	154	135	97	92	114	87
14th . . .	151	165	145	132	171	137	103	116	112	113
15th . . .	160	152	145	149	146	128	106	87	95	74
16th . . .	157	141	124	144	157	117	88	102	89	85
17th . . .	158	100	107	125	114	116	89	106	83	113
18th . . .	132	161	113	133	121	107	76	90	95	108
19th . . .	152	133	128	122	140	117	95	90	97	100
20th . . .	141	131	121	138	119	95	90	67	97	87
21st . . .	113	120	99	119	119	99	98	96	104	99
22d . . .	117	128	104	153	187	128	79	88	81	91
23d . . .	125	120	121	127	115	117	56	83	73	73
24th . . .	128	117	115	126	156	132	61	95	75	80
25th . . .	188	103	118	117	110	117	75	103	92	88
26th . . .	166	133	136	118	104	146	91	112	88	100
27th . . .	289	203	161	122	156	200	150	132	93	103
28th . . .	295	219	180	156	174	276	172	226	195	140
29th . . .	317	289	243	157	274	295	206	195	239	220
30th . . .	372	345	288	200	317	292	230	225	219	254
31st . . .	366	269	349	254	304	300	191	242	163	294
32d . . .	321	274	298	254	332	274	225	275	206	306
33d . . .	303	289	311	311	319	318	160	226	246	263
34th . . .	275	278	256	319	273	215	196	168	187	200
35th . . .	257	225	248	244	274	188	188	153	177	180
36th . . .	198	195	159	286	248	147	154	145	161	149
37th . . .	193	206	153	271	226	125	124	133	176	122
38th . . .	170	149	140	241	145	121	144	100	111	113
39th . . .	187	135	156	224	145	90	85	82	103	93
40th . . .	150	122	148	154	127	141	98	107	88	98
41st . . .	154	126	124	163	149	98	105	93	97	93
42d . . .	124	110	117	151	105	82	108	116	88	83
43d . . .	144	129	132	141	116	90	100	123	98	95
44th . . .	116	115	128	124	117	84	91	110	76	74
45th . . .	109	96	112	115	....	78	74	108	57	88
46th . . .	107	96	139	126	117	76	76	100	70	86
47th . . .	128	121	127	103	108	83	78	105	58	81
48th . . .	103	106	126	121	117	88	94	72	84	95
49th . . .	138	118	129	121	118	108	76	96	70	69
50th . . .	116	109	133	102	115	106	93	97	65	90
51st . . .	123	106	117	115	107	102	90	100	72	102
52d . . .	137	112	138	116	118	92	72	75	73	94

Cause and Number of Deaths Registered in New York in each of the Thirteen Years—1851–1863.

Diseases.	1851	1852	1853	1854	1855	1856	1857	1858	1859	1860	1861	1862	1863
Abscess (various)	72	68	44	80	64	59	89	66	67	64	73	57	51
Albuminuria (Bright's disease)	....	....	40	73	79	48	134	117	139	147	163	195	255
Amputation	1	....	1	2	3	4	2	8	6	2	1	6	2
Anæmia	....	....	....	....	9	9	21	17	22	8	....	....	....
Aneurism	17	22	13	7	7	6	7	8	8	14	10	11	7
" of the aorta	....	....	6	17	13	11	13	26	13	11	25	20	16
" of the heart	....	....	3	7	2	3	5	4	....	1	....	....	2
Angina	38	43	16	10	12	14	21	11	58	37	16	2	64
" pectoris	....	....	1	4	....	....	5	3	....	5	5	41	....
Apoplexy	657	653	253	285	201	194	211	134	309	299	194	304	383
Asphyxia	26	17	20	42	15	3	4	28	82	45	77	55	76
Asthma	41	50	37	54	52	35	32	29	48	51	33	27	41
Bleeding	5	50	30	21	26	19	18	22	63	40	45	30	56
" from the bowels	2	....	12	10	14	14	12	4	13	7	13	9	7
" " liver	....	....	....	....	3	....	1	....	....	....	2	1	1
" " lungs	49	35	56	70	65	50	51	61	53	35	57	59	63
" " umbilicus	....	....	....	9	11	16	6	19	5	8	10	9	14
" " stomach	5	12	13	13	12	12	8	9	7	4	1	5	....
" " womb	11	10	13	33	27	35	27	30	19	24	15	7	22
Bowels, disease of	....	....	....	32	43	28	13	13	5	....	....	....	....
Brain, disease of	....	....	....	26	30	18	31	45	30	....	....	....	605
Bronchitis	254	230	231	290	168	193	360	343	310	336	424	320	406
Burned or scalded	98	87	93	94	84	119	108	112	135	154	154	127	132
Cancer	90	91	77	107	147	154	187	189	198	180	173	160	207
Carbuncles	4	....	6	9	2	5	5	....	6	3	3	14	4
Casualties	179	173	216	191	71	144	138	130	266	298	324	254	355
Caries	6	2	....	....	....	....	17	....	....	....	....	....	3
Catarrh	11	....	4	19	20	10	....	25	23	9	10	16	11
Chlorosis	....	....	....	4	2	2	1	3	....	2	3	1	4
Cholera	....	374	20	2509	19	8	11	5	9	17	12	9	9
" infantum	721	915	522	1525	1135	1381	1308	1579	1364	1669	1207	1280	1525
" morbus	102	238	51	301	39	50	42	51	62	79	73	84	112
Chorea	....	1	1	....	5	3	3	....	1	4	2	1	4
Cirrhosis of the liver	....	22	7	29	27	30	53	59	44	46	69	71	....
Colica pictonum	51	48	27	24	22	25	16	17	14	6	2	2	1
Compression of the brain	....	....	....	15	36	10	28	17	14	22	21	19	....
Concussion of the brain	9	9	58	19	22	22	33	15	17	13	9	4	....
Constipation of bowels	5	11	7	19	11	11	8	17	9	....	....	....	....
Congestion	16	13	8	....	3	10	5	6	5	5	3	2	1
" of the bowels	....	....	....	10	18	11	11	8	8	....	2	7	..
" " brain	....	....	406	581	469	374	463	476	489	495	464	427	....
" " heart	....	....	....	....	1	2	2	1	1	....	....	....	....
" " kidneys	....	....	....	1	....	1	3	3	2	1	1	3	....
" " liver	3	....	1	6	11	13	11	12	9	7	12	19	....
" " lungs	185	256	244	242	304	241	307	302	217	283	369	279	....
Consumption	2374	2487	2068	3032	2635	2478	2814	3046	3239	3186	3025	3170	3485
Convulsions	1702	1680	1374	2183	1895	1472	1589	1799	1816	1650	1480	1496	1752
" puerperal	....	....	....	23	27	38	34	35	10	9	4	....	17
Croup	462	595	502	637	639	550	560	478	622	599	460	685	908
Cyanosis	39	30	39	55	47	53	41	46	56	49	56	37	41
Debility	429	468	322	374	377	388	444	468	425	522	443	528	539
Delirium tremens	118	118	112	119	86	74	93	99	82	139	97	89	104
Diabetes	6	2	6	6	11	11	8	15	7	4	7	9	9
Diarrhœa	743	567	420	1108	781	494	550	598	502	420	456	473	739
Diphtheria	....	....	....	....	....	....	....	2	5	53	422	453	594	981
Dropsy	350	382	234	288	253	228	248	239	214	322	347	317	355
" in the chest	69	68	66	84	64	51	80	61	60	62	49	53	47
" " head	791	882	686	1080	947	843	935	982	907	792	826	769	811
" " heart	3	3	....	33	27	23	11	13	14	11	14	20	35
" " ovaries	....	....	....	13	5	7	2	3	3	....	4	4	2
Drowned	162	169	165	183	186	141	164	161	165	185	204	182	260
Dysentery	1193	774	498	859	568	427	321	344	258	198	233	182	286
Dyspepsia	4	8	4	9	6	2	6	5	9	8	7	7	5
Enlargement of heart	....	....	48	64	62	43	76	53	14	36	47	62	60
" liver	....	....	5	8	11	11	12	7	4	6	7	13	10
" prostate gland	....	....	....	3	2	4	....	2	....	1	....	1	1
" spleen	....	....	....	....	1	2	2	1	....	1	4	....	....
Epilepsy	48	47	29	49	42	46	49	53	57	69	73	49	55
Eruption	....	3	13	22	11	12	12	12	1	1	2	....	....
Erysipelas	205	156	114	147	140	114	139	156	141	107	130	131	124
Exposure	11	9	2	9	8	14	12	3	6	8	9	6	9
Fatty heart	....	....	....	7	2	2	7	9	4	6	8	12	33
" kidneys	....	....	1	4	2	....	2	4	4	4	1	2	2
" liver	....	....	2	3	1	2	6	10	18	17	21	19	23
Fever	147	172	74	50	....	56	37	18	38	....	6	24	....
" bilious	41	26	37	41	20	37	26	16	12	3	36	14	102

Cause and Number of Deaths.—Continued.

Diseases.	1851	1852	1853	1854	1855	1856	1857	1858	1859	1860	1861	1862	1863
Fever Chagres and Panama	....	....	13	22	10	4	4	2	2	1	1	1	2
" congestive	36	22	18	23	17	23	8	22	6	16	5	13	1
" gastric	....	....	2	10	8	5	5	6	5	7	3	7	....
" hectic	4	10	12	14	7	8	8	15	9	8	5	8	....
" intermittent	16	10	16	34	23	33	28	22	19	4	12	12	16
" miliary	4	....	....	4	3	1	1	4	3	1	....	....	5
" nervous	31	51	29	53	33	25	14	35	12	20	13	13	5
" puerperal	165	155	98	141	131	130	111	173	168	154	151	115	53
" remittent	112	79	54	72	73	102	76	70	62	45	33	30	26
" scarlet	627	613	392	517	1052	1283	1325	668	840	1927	1278	928	903
" ship	....	....	2	7	3	4	....	....	5	....	....	....	....
" typhoid	125	96	101	136	139	133	141	176	206	212	232	404	531
" typhus	977	662	313	383	436	227	171	126	169	198	191	136	420
" yellow	....	1	2	6	2	13	....	5	3	2	....	....	....
Fistula in ano	1	1	1	6	1	1	1	2	2	3	....	2	3
Fracture	5	8	4	4	2	6	6	6	4	2	....	1	....
" skull	27	29	7	39	64	26	38	35	14	19	7	11	12
" leg	7	8	2	10	....	10	11	9	2	2	....	3	14
" thigh	1	2	....	1	11	6	4	4	2	....	....	3	2
" spine	4	2	....	11	15	13	2	3	....	1	2	2	1
Gout	4	1	2	3	....	2	3	3	3	2	3	3	3
Gravel	3	....	....	3	2	3	1	1	....	....	....	1	1
Hanged	5	1	4	1	....	....	1	1	....	2	....	2	....
Heart, disease of	273	276	182	246	247	243	232	306	435	375	299	281	378
" " rheumatic	....	....	....	....	10	13	24	28	....	6	....	....	....
" " valvular	....	....	....	....	19	24	33	40	21	23	15	8	....
" ossification of	....	....	....	....	8	4	4	....	....	1	1	2	5
Heat, effects of	....	....	....	24	16	7	....	9	1	....	....	....	86
Hip, disease of	1	7	17	16	13	13	19	10	4	3	4	8	6
Hooping-cough	114	187	113	340	377	248	270	347	353	217	160	255	127
Hydrophobia	4	1	1	....	4	3	2	....	2	....	5	1	3
Hysteria	....	....	1	5	4	4	2	....	....	2	....	1	1
Inflammation	35	13	11	15	8	4	24	12	4	....	4	4	1
" of bladder	10	15	8	14	4	8	14	14	27	28	33	46	39
" " bowels	537	432	309	367	351	332	350	332	335	336	427	528	540
" " brain	418	442	354	450	299	278	418	504	468	533	601	512	683
" " chest	52	20	14	14	13	13	6	5	16	27	5	3	....
" " ear	....	....	....	4	2	2	....	3	....	2	2	....	....
" " eyes	....	....	....	....	1	1	....	1	3	....	....	....	....
" " heart	21	37	41	62	58	67	50	46	25	32	49	46	43
" " kidneys	25	28	23	14	17	15	13	9	33	44	29	44	....
" " liver	110	120	86	70	70	49	56	47	55	94	82	88	....
" " lungs	1263	1062	857	1137	1123	856	1093	1218	1167	1299	1252	1100	1713
" " spine	3	....	1	7	10	2	2	7	3	9	2	2	....
" " stomach	182	122	93	102	92	120	112	112	157	171	111	150	152
" " throat	53	50	107	118	64	50	71	70	111	132	101	68	49
" " tonsils	....	....	....	23	13	8	15	15	4	....	....	....	....
" " veins	2	5	8	8	4	4	7	9	15	16	8	8	11
" " womb	21	20	18	14	10	19	5	20	22	32	41	34	25
Inanition	77	36	33	72	5	2	....	....	50	....	....	....	....
Influenza	....	3	4	3	9	8	6	6	3	2	3	3	....
Insanity	4	12	9	15	12	10	17	18	6	10	7	4	4
Intemperance	48	66	36	68	21	116	124	120	118	131	84	12	117
Intussusception of intestines	8	7	5	11	8	11	2	10	7	5	13	5	5
Jaundice	38	34	24	37	44	36	30	33	33	29	40	31	36
Kidneys, disease of	....	....	....	17	23	12	30	22	21	....	2	....	52
Knee-joint, disease of	....	....	....	1	2	....	1	2	1	1	1	1	2
Liver, disease of	....	....	....	39	46	58	40	35	32	....	1	....	214
Lues venerea	39	29	28	48	45	49	50	63	58	53	54	60	68
Lungs, disease of	....	....	....	....	33	9	16	20	10	....	....	....	....
Malformation	44	57	41	92	87	32	37	14	23	8	29	11	16
" of the head	....	....	....	....	....	4	4	....	1	2	....	....	11
" " heart	....	....	....	....	....	21	28	20	19	10	6	17	....
" " lungs	....	....	....	....	....	8	10	13	1	2	....	1	....
" " spine	....	....	....	....	....	11	6	13	....	4	1	....	....
Marasmus	1691	1007	819	1711	1563	1447	1662	1626	1471	1512	1500	1308	1479
Measles	320	246	113	362	383	330	322	392	261	197	376	128	215
Mortification	3	41	33	65	52	29	48	41	36	35	28	22	28
Mumps	2	....	4	7	6	3	3	5	4	2	3	....	1
Murdered, or killed	15	18	21	32	25	30	63	47	28	22	21	52	127
Neuralgia	1	2	5	5	6	3	3	1	....	3	5	3	1
Old age	179	160	111	180	213	182	204	180	258	294	284	263	307
Palsy	132	138	92	124	142	117	118	135	257	207	206	219	237
Parturition, difficult	7	....	3	36	26	16	23	26	2	4	....	3	....
Piles	1	....	1	....	....	....	....	5	....	....	....	....	....
Pleurisy	42	33	38	72	64	47	53	61	51	44	47	57	67

Cause and Number of Deaths.—Continued.

Diseases.	1851	1852	1853	1854	1855	1856	1857	1858	1859	1860	1861	1862	1863
Poison	29	12	11	20	16	25	13	20	11	25	13	10	13
Polypus	....	....	3	2	3	4	....	3	....	....	2	2	....
Premature birth	220	225	251	435	374	387	459	397	374	247	315	271	264
Quinsy	....	....	....	....	....	4	10	2	3	6	....	....	....
Retention of menses	....	....	....	4	5	....	....	1	....	....	....	....	....
" urine	....	....	....	10	5	2	3	....	8	1	1	....	....
Rheumatism	36	....	29	28	38	32	43	35	40	37	54	49	57
Rupture	29	31	9	2	5	5	15	9	2	....	7	6	9
" of the aorta	....	....	....	....	1	3	4	2	1	4	2	3	4
" " bladder	1	....	....	3	1	1	3	....	1	1	1	....	1
" " heart	2	2	....	....	1	3	....	1	2	3	5	2	6
" " intestines	....	9	....	17	28	3	10	17	3	....	2	2	....
" " liver	....	....	....	1	3	3	3	2	1	....	2	....	....
" " lungs	....	....	....	....	2	1	1	6	1	....	....	....	....
" " navel	....	....	1	....	....	1	2	....	....	....	....	1	....
" " spleen	....	....	1	....	1	....	2	....	1	....	1	....	1
" " urethra	....	....	1	....	....	....	....	....	....	....	2	....	....
" " womb	7	16	1	8	6	10	8	6	7	12	8	5	6
Scirrhus	6	3	21	20	8	....	6	3	16	16	....	3	....
Scrofula	101	100	117	182	129	116	117	181	91	98	85	69	65
Scurvy	2	....	....	32	25	19	20	28	4	2	7	5	5
Smallpox	562	497	501	611	101	388	423	492	60	274	599	268	73
Softening of the bones	....	....	....	1	....	2	2	6	3	1	5	8	2
" " brain	....	....	19	29	30	31	39	43	43	40	23	40	32
" " stomach	....	....	14	26	21	10	15	16	....	....	....	....	1
Spinal disease	27	30	15	22	13	13	18	14	18	13	14	26	17
Sprue	78	33	43	90	66	49	36	56	24	15	25	27	14
Stone	2	....	....	....	2	2	3	....	1	....	....	....	1
" in the gall bladder	....	....	....	....	....	....	....	....	2	2	....	....	1
Strangulation	4	2	3	....	....	2	2	2	2	7	12	4	3
Stricture	....	....	....	....	7	3	6	3	5	2	....	2	3
Suffocation	61	24	27	6	10	15	19	25	26	66	57	55	41
Suicide	34	37	50	59	63	62	72	75	56	62	44	43	49
Stomach, disease of	3	....	....	15	5	8	6	4	....	....	....	....	....
Sun-stroke	31	15	211	....	34	27	14	34	5	12	15	44	133
Suppression of menses	1	....	....	....	1	4	1	2	....	....	1	....	....
" " urine	....	....	2	....	1	4	4	4	4	5	4	1	1
Teething	151	177	117	146	129	360	327	143	290	122	140	72	90
Tetanus	29	24	13	49	37	35	36	21	37	27	37	33	35
Tumor	13	19	10	19	17	10	15	22	34	56	22	29	23
Tapeworm	....	1	....	....	....	....	....	....	....	....	....	....	....
Ulceration	13	11	19	31	25	17	22	15	6	5	5	2	....
" of the throat	5	20	5	12	10	7	7	7	19	....	17	7	25
" " intestines	1	19	13	32	48	38	25	23	15	18	15	13	20
" " stomach	3	3	....	6	5	8	10	14	6	21	6	8	7
" " womb	21	2	....	4	2	4	....	1	2	....	....	....	1
Unknown	1	166	90	55	37	73	38	48	20	40	63	45	48
Varioloid	24	19	18	13	6	8	11	13	2	15	17	1	5
White swelling	....	....	....	7	2	....	....	....	....	....	....	....	....
Womb, disease of	....	....	....	2	5	4	4	4	....	....	....	....	....
Worms	4	11	4	14	7	16	10	10	2	4	2	1	1
Wounds	....	....	4	....	....	....	2	....	....	....	1	2	1

This table presents a full exhibit of the total mortality from all causes, commencing with the period when our registration was complete up to 1864; the aggregate is large, yet when we consider the very great number of persons, and they living upon less space than is to be found occupied by a similar number in any city in the civilized world, with more unacclimated foreigners landed and living in it than there were in the same period in London, Paris, St. Petersburg, and Berlin, together with numerous other circumstances which increase the bills of mortality found nowhere else, it may be said truly that the number is remarkably low, and justifies the conclusion that New York city is as healthy, if not indeed the healthiest large city in the world.

Typhus Fever in England, London, and New York, from 1844 *to* 1864.

Year.	England.	London.	New York.
1845	13,460	1,333	175
1846	19,701	1,851	262
1847	33,604	3,232	948
1848	40,102	3,614	720
1849	27,610	2,515	415
1850	15,374	1,967	396
1851	17,930	2,404	977
1852	18,641	2,209	662
1853	18,554	2,701	313
1854	18,893	2,715	383
1855	16,470	2,374	436
1856	16,182	2,674	227
1857	19,016	2,203	171
1858	17,883	1,902	126
1859	15,877	1,796	169
1860	13,012	1,392	198
1861	17,960	1,754	191
1862	17,101	1,641	136
1863	.....	.....	420

By examining this table you will perceive that the mortality by this disease was very great in England, including London, and also in New York during 1847, 1848, 1849, in 1851–2 and 1853; and further, it will be seen that the mortality by it is much greater at all times in London than in New York, in proportion to the population, it being as 3 is (in London) to 1 (in New York).

The following table shows that these fevers are the common prevailing diseases of Sweden. They do not keep full pace with the population, yet a considerable portion of the annual mortality is by these maladies. It will be noticed, also, that they occur in the form of fearful epidemics at almost stated periods of from ten to fifteen years. This is an exceedingly valuable table, as it shows the statistics of this disease in this country for more than a century, a circumstance that is scarcely to be found in any country, and speaks well for the vigilance and enterprise of these people in that remote period.

Population and Deaths by Typhus and Typhoid Fevers in Sweden, from 1749 to 1855.

Year.	Population at the end of the year.	From typhus & typhoid fevers.	Year.	Population at the end of the year.	From typhus & typhoid fevers.	Year.	Population at the end of the year.	From typhus & typhoid fevers.
1749	.....	3,948	1785	2,149,773	6,785	1821	.....	5,853
1750	.....	3,581	1786	.....	6,989	1822	.....	5,141
1751	1,785,727	3,398	1787	.....	6,500	1823	2,687,457	4,166
1752	.....	2,857	1788	.....	5,858	1824	.....	3,903
1753	.....	3,126	1789	.....	14,226	1825	2,771,252	3,962
1754	1,837,314	3,505	1790	2,158,232	11,408	1826	2,805,350	5,294
1755	.....	3,609	1791	.....	3,259	1827	2,828,568	7,871
1756	.....	4,320	1792	.....	4,226	1828	2,848,062	9,847
1757	1,870,372	5,502	1793	.....	4,533	1829	2,864,831	9,264
1758	.....	5,566	1794	.....	4,476	1830	2,888,082	7,353
1759	.....	5,413	1795	2,281,137	5,010	1831	2,901,061	6,303
1760	1,893,248	5,339	1796	.....	3,853	1832	2,922,845	4,610
1761	.....	4,753	1797	.....	4,141	1833	2,959,257	3,560
1762	.....	6,022	1798	.....	4,737	1834	2,983,144	3,710
1763	1,940,011	8,342	1799	.....	4,928	1835	3,025,439	4,101
1764	.....	7,350	1800	22,347,303	5,872	1836	3,061,533	4,670
1765	.....	6,120	1801	.....	5,594	1837	3,080,538	4,340
1766	1,981,600	5,445	1802	.....	5,634	1838	3,096,794	14,700
1767	.....	5,132	1803	.....	6,265	1839	3,115,169	15,000
1768	.....	4,054	1804	.....	6,860	1840	3,138,887	5,640
1769	2,015,127	4,499	1805	2,427,408	6,023	1841	3,173,349	5,101
1770	.....	4,555	1806	.....	7,179	1842	3,207,141	5,610
1771	.....	5,983	1807	.....	8,065	1843	3,237,180	5,740
1772	2,032,516	12,846	1808	.....	12,527	1844	3,275,864	5,600
1773	.....	20,137	1809	.....	21,171	1845	3,316,536	6,310
1774	.....	4,947	1810	2,377,851	9,193	1846	3,343,556	5,400
1775	2,020,847	4,920	1811	.....	7,430	1847	3,363,330	4,100
1776	.....	5,358	1812	.....	8,058	1848	3,399,341	15,301
1777	.....	4,439	1813	.....	6,261	1849	3,443,803	16,540
1778	.....	4,337	1814	.....	5,555	1850	3,482,541	5,610
1779	.....	3,959	1815	2,465,066	5,325	1851	3,516,889	5,360
1780	2,118,281	3,394	1816	.....	4,590	1852	3,541,399	5,400
1781	.....	4,137	1817	.....	5,789	1853	3,562,462	5,200
1782	.....	5,046	1818	.....	6,359	1854	3,606,987	4,300
1783	.....	5,464	1819	.....	7,210	1855	3,639,332	8,201
1784	.....	6,494	1820	2,584,690	5,877			

ON SOME CAUSES

TENDING TO

PROMOTE THE EXTINCTION OF THE ABORIGINES OF AMERICA.

BY

JONATHAN KNEELAND, M. D.,

SOUTH ONONDAGA, N. Y.

ON SOME CAUSES TENDING TO PROMOTE THE EXTINCTION OF THE ABORIGINES OF AMERICA.

THE Onondaga tribe of Indians reside on a "reservation" secured to them by treaties, which contains nearly 5000 acres of good land. The valley in which they dwell extends north and south three and a half miles on both sides of Onondaga Creek, and except a strip of alluvial deposit near the creek, the soil is composed of the debris of the slate and gypseous shale which underlies the Onondaga limestones; in the hill east of this fertile valley are quarries of water lime, and both blue and gray limestones of the Onondaga lime group of rocks. Their timbered hill land rises so high (about seventeen hundred feet above the sea level) as to include the Hamilton slates and Tully limestone. This locality is about ten miles south of the city of Syracuse, and has been the home of this singular people ever since the earliest records, or still more remote tradition points them out to us.

They hunt and fish but little now—owing alike to the scarcity of game and fish, and to their indolence. Still, such animals as they capture for their skins, as minks, weasels, muskrats, and even reptiles, they eat with avidity, and the carcasses of young calves, and domestic animals which die or are accidentally killed among their white neighbors, are often sought by them for food. Their meat-eating propensities are very strong; though they raise some domestic animals, they never fatten them properly, but eat them when poor and lean. They have no sheep and but few milk cows. Lean dogs and starveling cats are numerous among them. They raise (by the labor of the squaws chiefly) some beans, and a species of Indian corn, which is tender for pounding in their mortars. They do not cultivate more than 250 acres of land themselves, and but half hoe what they plant. Most of their cleared land is rented to the whites for a term of years, the notes received for rent cashed at a ruinous discount by the givers, or others in collusion with them,

and the money received spent for food, dress, travel, and gew-gaws, long before the land again reverts to them.

The squaws make baskets, husk mats, bead work, cushions and fancy articles, and exchange them for the means to eke out food for the year after their corn and beans are exhausted. Many of the aged or crippled squaws go about with papers soliciting aid of food, clothing, and money, and get much assistance from their white neighbors during the winter and spring when their short supplies of food have given out.

Their stature (especially the full-breed and older ones) is larger than ours and more muscular. They resemble in physical conformation the Chinese coolies, are large limbed, large featured, with small hands, and conical heads, small in the summit and broad at the base.

This tribe, the warriors of which were estimated by Colonel Coursey, an agent from Virginia, in 1677, and then numbered 350, must have then contained at least 3000 souls. During the war of the Revolution there were in the British service 300 Onondaga warriors; the number now left in the tribe is not more than one-eighth what it then was. On asking the chiefs for the cause of this decline, they say: "Many Onondagas gone to Canada to live with the Mohawks, some gone to live with western Indians at Green Bay, some went many years ago and joined the Senecas, and some have gone to the white man's big war way down south."[1] But all these allowances being made, there are not as many hundred Indians left as there were thousands two hundred years since. Let us glance briefly at the cause of their decline and probable final extinction.

The use of tobacco is more universal with young and old than with any known race; young children are quieted with it, the obedience of tardy urchins is secured by a chew of tobacco; it is

[1] Some twenty Indians, influenced by bounties, martial music, showy uniforms, and whiskey, did enlist early in the war, got discontented, and, by the influence of two of their best talking chiefs with President Lincoln and the Secretary of War, were released and came home; again re-enlisted for the large bounties, and have again, by the extreme good nature of our chief magistrate, been released. No Indians from this tribe are now received as volunteers, or taken as substitutes, by the United States Government. A few, six or eight, were taken, in the summer of 1864, by enrolling themselves as Canadians or Frenchmen. Are these people any more deserving of exemption from the dangers and perils incident to preserving and defending the government which pets and clothes them, than white men or negroes?

more potent with them than candy with us; the pains and hunger of the sick and aged and poor are assuaged with tobacco.

The use of whiskey is also prevalent among them. Some deaths are caused every year directly by drunkenness; three young and middle aged men died in the winter of 1862 and '63, by lying out drunk of nights, when the thermometer was below zero; two deaths have occurred in a drunken row by violence within four years; two Onondagas, one of them chief of the Six Nations, were drowned while intoxicated, the one in the canal, the other in a small creek, in the spring and early summer of the present year, 1864, and many have been the victims of disease from their habits of surfeiting and drunkenness, alternating with hunger and want, who would else have recovered.

It is said smallpox was unknown among them before the settlement of this country by the whites, but certain it is that this disease has proved very fatal to them during several epidemics which have occurred within fifty years. Vaccination has only been partially introduced among them within the last six years. It is extremely difficult to lead them into prophylactic measures, never consenting to vaccination except when having been exposed to smallpox.

Measles, scarlatina, cerebro-spinal meningitis, and diphtheria, have all been characterized by uncommon fatality among them. Typhoid fever has also been marked by unwonted severity during two spring epidemics in which it prevailed among those who were camping out in the woods to make maple sugar.

But syphilis and scrofula are the ever present chronic foes of this tribe. Syphilis often appears as a congenital malady, such cases being characterized by the look of old age, which often appears in infants suffering from inherited syphilis; many of these cases attended with eruptions and ulceration prove fatal.

The number of children born at full time is proportionately larger than among whites, while the number of children reared is less. Indeed, abortion is seldom caused among these people, either by instruments or by medicines. The squaws all desire to be mothers *early*, mothers *often*, and mothers *late*. This may be caused in part by mercenary motives, as each child draws an annuity from the State of about eight dollars, and more than that sum in value from the National Government in clothing and blankets, but pride of maternity and fondness for pets and children are very strong among this people. There is also a pervading desire to resist the manifest tendency to extinction on the part of the whole tribe.

Scrofula has set its seal on many adults, and most of the children in the tribe, in the form of scars on the neck, and goitrous enlargements or diseased joints. The percentage of deaths from pulmonary tuberculosis is very large; many young men and women from the ages of fifteen to twenty-two have died, during the ten years of my acquaintance with the tribe, within a year after marrying.

I know of no victims of solitary vice among them. They are sure to marry; in fact, if not by the ceremony, as soon as the development of the procreative organs will warrant, often somewhat before.

Growing out of these conceptions from the commerce of immature parents is the fact, that but few of the resulting offspring are reared, but die of scrofulous or syphilitic maladies during the teething months. If they survive this period many of them are scarred, crippled, or fatuous, and will fall victims to the subsequent development of these diseases at the period when growth ceases.

The degeneration and inherent vices of organization which have caused the native Maltese and residents in some other secluded islands, and of certain mountain valleys in Europe to become cretins, dwarfs, and imbeciles, in an unduly large proportion, are in full operation in this tribe. Marrying in and in, incestuous commerce, immaturity of parents, and the transmission of scrofula and syphilis to their offspring, all tell silently but cumulatively from generation to generation.

The laws by which the strength and perpetuity of different species of animals are preserved are applicable as well to man as other species; the right of the strongest males, and healthiest females to perpetuate their kind is indisputable, and the same reasons which are operating to run out the old aristocracy of the Eastern continent are equally imperative upon those who occupy the other extreme of the social scale in the New World, and where tribes or families become unable to protect themselves from the elements, or from the assaults of other animals, or abler self-asserting members of their own species, they must give place to the stronger; here as elsewhere in nature mights are rights; and vigor triumphs over decay.

The infusion of white blood into this tribe has not added to the physical vigor of its subjects. Perhaps half and quarter breeds are shorter lived than full breed Indian children. The Onondaga mothers who bear children from husbands coming from other tribes, themselves full breed Indians, are the most successful

mothers, rear larger families than those where both parents are Onondagas, and by consequence cousins and relations of every conceivable degree.

Many of the Oneidas who have settled in and intermarried with this tribe show plain marks of both Dutch and African mixture of blood, and are more industrious and intelligent than native Onondagas as a class, but not on the whole more robust and long-lived.

The State of medical knowledge among these Indians may be briefly told. Their knowledge of remedies and of diseases is so vague and limited that it is a marvel why any sane quack should think to add to his popularity by styling himself an Indian Doctor, or should hope to increase the sale of his nostrums, by giving them the Christian name of some unpronounceable Indian tribe. A few roots, leaves, and barks of recognized medicinal powers, such as black cohosh, mandrake, apocynum, and spigelia, and many more of no potency for good or evil, as witch-hazel, wild grape-vine roots, angelica, fire-weed, together with Epsom salts and castor oil, make up the most of their Materia Medica. They have here a chief who glories also in the title of Indian Doctor, who practises a little in the tribe, and among some of the ignorant and credulous whites in the surrounding section. He is very limited in his remedies, but makes up the lack in boasts and pretensions, which prove him a counterpart—perhaps a near relative—of Longfellow's Iago.

There are a few squaws who dispense mysteriously manipulated compounds of roots, leaves, and barks, infused in large quantities of warm water, given warm, or added to rum or whiskey, and given for months to chronic invalids; but none of these ever extract teeth, bleed, cup, adjust broken or dislocated bones, or open swellings—for all surgery or operative midwifery they depend on "white doctors" or nature, and so destitute were they of the means of paying for medical and surgical attendance, even where they might have the disposition to pay, that nature had been trusted to in many cases where timely aid might have saved life, or preserved limbs from terrible distortion. Some contiguous physicians and other benevolent persons who had long witnessed their destitution and made great pecuniary and personal sacrifices to relieve it, finally, in 1858, secured the enactment, by the legislature of the State of New York, of a statute for the relief of the Onondaga Indians. When sick and indigent, being a nation within a nation, they could not, before the passage of this act, receive any aid as paupers, from

town or county boards; they now are provided with relief through "a competent physician," who is annually appointed by the supervisors of the county from among "the most convenient, educated medical practitioners," and receives from the general fund of the State $300 annually for his medical and surgical services in the tribe if his audited bills amount to that sum.

Having been called a few times to cases of operative midwifery and surgery, in the tribe, I have no doubt that many lives have formerly been sacrificed for lack of timely aid in difficult parturition and in bad surgical cases. I have never seen here a one-legged or one-armed Indian; and for many years no amputation has been performed in this tribe—the reason given by their head chief, Harry Webster,[1] was, "that Indian always would die when doctor cut off his leg or arm." They bear grave operations badly. The trophies of conservative *surgery* with the "surgery left out" are very numerous in the tribe in the shape of gaping-scars, and legs and arms anchylosed at every conceivable angle, most of which might have been preserved from deformity by proper dressings, or suitable mechanical appliances, after being well adjusted.

They apply hot and stimulating barks and roots to wounds, and drench their fever, scarlatina, and smallpox and surgical cases, where fever and inflammation are present, with hot decoctions, and confine them in warm and filthy rooms.

In one case of midwifery, where the use of the forceps had to be resorted to, I was amused with the grim humor of these stoics of the woods. The young squaw was a half-breed in labor some 30 hours with her first child; all the midwives of the tribe in attendance before I was called; I soon, however, succeeded in extracting a live fœtus, and after separating the child and removing the placenta, I stepped to the door of the one-roomed, one-doored cabin to wash my hands in snow; judge of my surprise, on returning, to find the bed of husks and old quilts occupying the hard ground in the middle of the room, was empty—my patient nowhere to be seen—but a demure row of Indian women seated on a bench on the side of the hut farthest from the door, each with her squaw's shawl or Indian blanket drawn over her head, and looking as much alike

[1] This chief is now dead; he had an Indian mother, and was the son of Ephraim Webster, the first white man who settled in this country (since the failure of the French Jesuits to form a colony from 1656 to 1750); he came from New Hampshire, about 1786, and was, it is believed, of the same stock with Daniel Webster.

as the beans in a pod. Having left my patient on the ground bed in the place where she was delivered thoroughly tired out with the length and severity of her labor, I looked surprised, and they all laughed heartily; but my patient's younger teeth and more quiet laugh exposed her, although up and dressed, and seated in the row with her midwives and relatives.

I could after this readily credit an incident from Irving's Astoria, that a child which was born at camp in the evening was strapped to a board,[1] and mother and child mounted a pony and marched on with the Indian cavalcade the next morning.

They are the most free from hysteria and nervousness of any people known to me; anæsthetics would be wasted on them; they seldom utter cries of pain, and a sort of guttural moan is the only indication from the lungs of the presence of parturient throes.

Still, I have seen three cases of cataleptic unconsciousness among them caused by grief for the loss of favorite children. In one of these cases the father and two children, one eight and one thirteen years of age, died within three days of each other of cerebro-spinal meningitis. The mother had begged for a "white doctor," and the second child died just as I reached the bed-side; the mother swooned or fainted, and did not recover so as to swallow in twenty hours; her jaws were set, her pulse slow and weak, and respiration apparently

[1] The Onondagas retain the custom which prevailed among the Indians at the time the whites first settled in this country, of binding the pappoose or Indian baby to a board to which it is firmly swathed from the shoulders down, over the upper end of which projects a firmly attached bow which serves to keep the blanket or veil from the child's face, and, also, is the handle by which the child is swung to and from the mother's shoulders when she travels; it was also used, as we learn by the old stanza, for suspending the child to a tree-top or pendent limb—

"Rock-a-by-baby on the tree top,
When the wind blows the cradle will rock,
When the bough breaks the cradle will fall,
And down comes cradle, baby and all."

Attached to a pendent limb, or a bent sapling, by its firm cradle handle, the young pappoose may, I am told, occasionally here, as in olden time, be seen swaying gently in the wind with a soft and easy motion, while the mother plants, or hoes, or weaves her mat or basket.

This binding the child firmly, its back to a board, for months during infancy must influence to some extent the form of the spine, and may serve to account for a straightness almost abnormal; hence the saying "straight as an Indian."

The band drawn tightly around the pelvis and head of the femur may have changed the direction of the toes in walking, for it is well known that the toes of an Indian point straight forward in parallel lines in walking, and are not directed outward on diverging lines like most other nations and tribes of men.

almost suspended. This woman died of effusion in the chest, supervening upon pericarditis, which was developed soon after the loss of her children—would not this have been styled death from broken heart in the olden time?

One reason why acute diseases are so fatal with the Indians is that they know nothing of nursing and care. Their food is filthy and improperly prepared for the sick; their corn and beans, with almost any kind of dead animal substance boiled to a porridge, and corn hoe-cakes may give muscle and strength to the well, but is the poorest of poor man's broth for the sick; still, as they shall by degrees get confidence in their "white doctor" and learn to heed his directions as to food and care, their final extinction will be delayed, by the same means which have increased the average duration of human life among civilized nations.

But those of us who pity and strive to arrest the downward course of this remnant of the original lords of the forest, may delay what we are wholly unable to prevent, for I much fear that before the poor Indian has learned the laws of his physical nature and how to obey them, economy of time and means, industry, and reliance upon his own muscles and broad acres for his support, instead of looking for the government to hire his teacher and physician, and for his wants to be met by others, without forecast and plan of his own—before these radical changes in his habits are effected—the waning remnant of the Onondagas will forever have passed away.

REPORT

OF

Surgical Section.

REPORT

OF

SURGICAL SECTION.

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3 P. M., 8th JUNE, 1864.

Dr. A. VAN DYKE, of Oswego, Oswego County, New York, was elected President; Dr. J. HOMBERGER, of New York City, Secretary.

On motion, Dr. GURDON BUCK, of New York, was requested to introduce a patient who had been operated on for destruction of the right side of his face by a number of successive plastic operations. Dr. Buck referred the members to the minute description of the case, which will be published in the *Transactions of the New York State Medical Society for* 1864, and explained the different steps of the operation briefly, illustrating his remarks with photographs and casts taken at different periods.

Dr. NORMAN W. KINGSLEY spoke on a new elastic appliance invented by him for the purpose of supplying the want of a palate. His appliance can be used in fissures of the hard as well as of the soft palate, and recommends itself especially for the improvement which it effects in the voice of the patients. The description will be published in the *Transactions,* the paper of Dr. Kingsley being referred to the Committee on Publication. Dr. Kingsley introduced a patient to the audience who read a passage from Shakspeare's Othello with and without the appliance. The improvement in the voice was striking.

Dr. Kingsley's remark, occurring in his paper, concerning the effects of staphyloraphy on the voice of the patient, was taken exception to by Dr. Mussey, of Cincinnati, who related a case wherein an operation had restored the voice of a boy of twelve to almost a normal state.

Dr. Kingsley had never seen such cases, but believed that only in exceptional cases, where the parts were very elastic, such results

were obtained. Dr. Mussey, with a view to effect this, had always divided the palato-glossus muscles.

Dr. Post, of New York, remarked, that, as far as union was concerned, he had frequently operated with success for cleft palate, but that the voice, generally, was but little improved, probably because the tension of the soft parts after the operation was too considerable.

Dr. Homberger, of New York, asked whether any of the surgeons present had had experience with Langenbeck's method of peeling off the periosteum of the hard palate, and had thus succeeded in giving the required elasticity to the roof of the mouth.

Drs. Post, Mussey, and Dagget made remarks on Langenbeck's operation, and the two former stated that they had not peeled off the periosteum in their operations, but had extensively divided the soft parts. Dr. Dagget related a case where necrosis had followed this procedure.

Dr. Holcomb believed that the way in which the peeling off was effected had a great deal to do with the safety of this measure. He had seen a case at Langenbeck's clinic, where a large piece of the periosteum of the forehead had been removed with the skin in order to form a new nose, and the result had been perfect, no untoward symptom following the removal of the covering membrane of the bone.

On motion of the President, a vote of thanks was voted to Dr. Buck for his interesting communication.

A paper on *Lateral Curvature of the Spine*, by Charles F. Taylor, M. D., was referred to the Committee on Publication.

Dr. Macfarlan, of New York, read a paper on *an Improved Syringe for the Treatment of Strictures of the Lachrymal Duct.*

The method of Bowman, the destruction of the lachrymal sac as a means of cure, and the value of Dr. Macfarlan's instrument, were the subjects of a discussion, in which Drs. Macfarlan, Homberger, Dagget, Holcomb, and Hutchinson, of Brooklyn, took part.

Dr. Macfarlan's paper was, finally, referred to the Publishing Committee.

The Section after this adjourned.

3 P M.—9th June, 1864.

Dr. A. Van Dyke, President, in the chair, Dr. Homberger Secretary.

It was moved and adopted that Dr. Taylor's paper, on *Lateral*

Curvature of the Spine, be referred back to the general session, as the time of the Section was not sufficient to examine it.

Dr. MACFARLAN related a case of symblepharon operated on by him. He separated the attachments, passed a new pin through the lid about a quarter of an inch, another below, and twisted both together so as to pull the lid downwards and prevent contact; the dressing was left for twelve days. The case was cured as granulations sprung up and healed the wound.

A case of incomplete fistula in ano, in a child, was reported as cured by means of a stimulating ointment.

Dr. HOMBERGER recommended the use of subcutaneous injections of morphine in surgical and cataract operations. The sleep following was sound, and the flaps united universally by first intention. Dr. Macfarlan remarked that the use of morphine was commendable, as it would prevent vomiting, which was likely to follow in cataract operations if chloroform was given.

Dr. ELSBERG read a description of an iridectomy, and exhibited it to the Section.

On motion, adjourned.

JULIUS HOMBERGER, *Secretary.*

THE PATHOLOGY OF THE LATERAL CURVATURE OF THE SPINE.

BY

CHARLES FAYETTE TAYLOR, M. D.,

OF NEW YORK.

THE PATHOLOGY OF THE LATERAL CURVATURE OF THE SPINE.

THE lateral curvature of the spine is not a disease of the spinal column in the strictest sense of the term. Its existence, with but one exception, is always accidental, and depends on causes entirely extraneous to, and generally remote from, the flexible column which is the subject of distortion. In other words, the spinal column is *acted upon* in such a manner as to make it deviate from the normal position, and present one of the various forms of distortion known as the lateral curvature.

There are several forms of lateral curvature capable of clear and distinct classification, according to their location and aspect and the different causes which originate them.

It is important that these different varieties should not be confounded one with another, under the general designation of "lateral curvature;" and for the purpose of more clearly appreciating the different points of diagnosis pertaining to the several classes of this common affection, I propose briefly to discuss them under their separate heads.

Beginning in the order of frequency, we have the *first* class and simplest variety of lateral curvature—embracing at least three-fourths of all cases—the well-known sigmoid or double curvature. In this variety there is a principal curve in the dorsal region having its point of greatest deviation about opposite the lower margin of the shoulder-blade, and a lesser curve in the lumbar region in the opposite direction or to the left. This last is properly called the secondary curve, because it is really produced by and is a compensation for the principal curve in the upper part of the back. This is the form of curvature so common among school-girls, and indicates in its first stages simply weakness. In the first stages of this form of curvature the spinal column sways easily from one side to the other precisely as any other flexible

column would if its supports were too feeble to hold it firmly erect. It often seems to be first on one side and then on the other; and it not unfrequently happens that the mother will assert that the curve is in one direction while the daughter will assert that it is in the other direction, or they more commonly are both in doubt as to the matter. The fact is, the spine curves at this stage in all directions according to accidental causes, though it seldom fails, if allowed to advance to the second stage, to become permanently fixed to the right; I say to the right, for I do not now remember to have ever seen this form of curvature in the opposite direction. *Why* this is so, I have not been able to determine. The more constant use of the right arm, and the larger size of the right lung, have been suggested as affording some clue to an explanation. But the fact remains, notwithstanding.

This form of curvature in its first stage, that is, before the osseous structure has yielded sufficiently to become permanently altered in form, can be cured by any means which will give tone and vigor to those muscles whose duty it is to hold the trunk erect; it may be exercise, or rest, cheerful society, or mental relaxation, improved digestion, or absence from excessive study; anything, according to the indications, which will reinvigorate the system will cause the curvature to disappear, even though no treatment whatever be applied directly to the curvature itself.

For, though this form of curvature is produced by inadequate support to the spinal column, this weakness of the spinal muscles depends less on innutrition than on deficient innervation in certain constitutions. The curvature is often acquired by young ladies at school, but depends less on faulty positions and the want of muscular exercise—though these have their influence—than on unequal waste of nerve force by excessive study and other excitants of the brain and nervous system.

But, if we wait a few months, or years, in most cases an entirely different prognosis must be given. The spinal column, which, while young, soft, and flexible, bends down easily in the absence of adequate support, at length becomes moulded and fixed in its altered shape and position. But not only has the osseous structure become distorted—it has become hardened and fixed in this deformed shape. With years and increase of strength comes solidity of the bone-substance. And for the same reason that a curvature is not so likely to take place in later years, when the osseous framework has become solid and substantial, a cure will

be more prolonged, difficult, and imperfect when the case has been allowed to advance into the second or rigid stage. The curability of these cases depends entirely on the amount of flexibility of the osseous tissue; and though, other things being equal, the younger the patient and the more recent the curvature, the more speedy and more perfect the cure; yet there are no means of ascertaining the degree of solidity or flexibility of the bone, without trial. And experience proves that there is a great diversity in this respect; it often happens that persons twenty-five or thirty years old are more yielding and improve faster than others of ten or fourteen. The great obstacle to a cure at this stage is found not so much in the rigidity of the spinal column as in the resistance imposed by the great alteration of the chest. The ribs have become bent out of their natural form, turning a short angle behind, on the side of the curvature, with a corresponding flattening on the opposite side of the chest. It is this projection of one shoulder and the flattening of the other with a similar alteration of the chest in front—forcing the long diameter of the chest from the transverse to become the diagonal—which constitutes the chief deformity in this class of cases; it is the "growing out" of the shoulder which the patient and her friends are most anxious about.

The *second* class, in the order of frequency, may be called the crescentic variety: that is, cases having but one simple curve of the spinal column. These cases embrace perhaps one-sixth of the whole, and in my experience the curve is here found most frequently to the left; say in the ratio of two towards the left to one towards the right. I am unable to give any satisfactory explanation for the fact of the greater frequency of the tendency of this form of curvature to the left. In the sigmoid variety the point of greatest curvature is usually about the sixth or eighth dorsal vertebra; but in the crescentic or single curve the point of greatest deviation is always below the longer ribs, or from the ninth to the twelfth dorsal or first lumbar vertebra. Although there is one single curve with little or no compensating curve, it is not so simple in its origin and character as the double or sigmoid variety. The latter, as before remarked, is the natural yielding of the spinal column when deprived of its proper muscular support, and always originates at a time when the system in general is in an atonic condition. But the single curve very often occurs in thickset, large-boned, and muscular persons; not generally *when* they are strong, but in such frames as we never see affected with the double curvature. Every

appearance indicates that this variety of curvature is produced by muscular action; by over-action of the muscles on one side of the spinal column, overcoming those on the other side; thus actually forcing the spinal column in the opposite direction precisely as a bow is sprung when the cord is tightened. The peculiar aspect of these cases—which is more easily pointed out on the subject than explained in words—could be produced in no other manner than by the mechanical effect of excessive or spasmodic action of the muscles as above suggested. I have been able to trace the origin of many of these cases to times of severe sickness, and not a few have originated while the subjects were laboring under long continued intestinal irritation; such conditions of the system as are often followed by irregular muscular action, as indicated by the production of strabismus, talipes, &c. This form of curvature from its locality cannot be so readily acted on by the muscles or by other mechanical force as the first mentioned variety, and is therefore more difficult to treat successfully. But as the shoulders are not much disturbed—the chest being very little distorted—the young lady and her mother are only anxious about one hip "becoming too large."

The *third* variety of the lateral curvature—of which there is also about one in six—is a sigmoid curvature, but with the primary or larger curve *below* in the lumbar region instead of above in the dorsal, and having the secondary or compensatory curve at the latter point. These cases are frequently met with, and appear in all respects, like the first variety, turned upside down. Certain mechanical forces must produce definite results; and judging from appearances, I am forced to believe that this form of curvature takes place in consequence of a rachitic condition of the osseous structure. Not for want of adequate support from the spinal muscles, nor from tetanic or retractive action of certain muscles, but from insufficient firmness of the bones themselves, the spinal column yields to the weight above it; yields more in the lower portion, because, being lower, there is more weight at that point. The subjects of this form of the affection are for the most part of a strumous diathesis. The larger curve being at or below the waist, and the secondary curve being small and compensating, there is small amount of actual deformity for the size of the curvature: but this is the least capable of amelioration or cure of any form of this affection.

The *fourth* variety is entirely confined to the upper part of the

trunk, and is certainly caused by the greater respiratory power of one lung over the other. The shoulders are very uneven, one being much higher than the other, though in the posterior projection there is comparatively little difference. The characteristic visible deformity is the unequal height of the shoulders. On examination, it will be found that there is a marked difference in the size of the two sides of the chest, and also that in respiration the volume of inspiration is much greater on one side than it is on the other. One side will be flattened both in front and behind, while the other side will be correspondingly enlarged. Though there is not generally any actual disease of the lung at the time we see the patient, yet in almost every instance the patient has had a period of delicate health during which, from partial hepatization of one lung, the other was compelled to perform nearly the labor of both. Thus the muscular power as well as the actual capacity of one side of the chest, became unnaturally developed, producing an actual disproportion of lung power, which disproportion is kept up after the affected lung has regained its normal function. This occurring in a child, interferes seriously with its subsequent development, and produces the form of curvature under consideration. It is very amenable to correct treatment, most cases being cured or greatly relieved, if taken in season.

The *fifth* variety of curvature is in the lumbar region, but is characteristically different from any of the others mentioned, and is caused by a difference in the length of the legs. A tipping of the pelvis, from this cause, produces a characteristic deformity of the spine. In most forms of curvature one leg *appears* the shorter, but I had examined probably a hundred cases before one was found where such was actually the case. Nevertheless such cases do occur. From hypertrophy or atrophy of the femur or tibia or other cause it does happen, though rarely, that there is a notable difference in the lengths of the legs, and when that occurs in a subject which is liable to a curvature, its production is easy. When produced, the class to which it belongs is quickly detected, and examination will verify the diagnosis. Still, these cases are rare.

The *sixth* and last variety of lateral curvature which it is necessary to mention, is caused by a relaxation or partial atrophy of the muscles of one shoulder, particularly the trapezius. The scapula is held in place almost entirely by the muscles to which it is attached, so that any relaxation or unequal action of them is

immediately noticeable in the altered position of the shoulder. The curvature is for the most part only apparent, for there is really very little variation of the spinal column; but there is a great deal of deformity; one shoulder droops in some cases till it seems ready to slide down the back. Examination reveals all the muscles about the scapula, particularly the trapezius, to be very thin, relaxed and feeble. I have seen and treated five or six cases of the kind. The cause of this paralysis of the trapezius and other muscles I have never been able to satisfactorily trace. The treatment of such cases is generally successful.

In giving this condensed synopsis of the pathology of the different varieties of the lateral curvature of the spine, I have purposely avoided those numerous cases depending on local paralysis or disease of the limbs and joints. My object is, to simplify the examination of those common cases, which any physician is likely to have to pronounce an opinion upon, and about which he gets very little information from the books.

As to the treatment of this affection it would be too elaborate to enter upon here. It is my present purpose to publish a monograph on the whole subject during the coming year. I will only say, in closing, that all stays, braces, corsets, and instruments of any kind, which are to be worn on the person, are worse than useless; they are positively injurious. They are not powerful enough to reduce the bones into shape, but they are quite capable of binding up and weakening the muscles. The treatment must be a combination of local muscular development, assisted by apparatus powerful enough to actually force the osseous structure to yield in the direction opposite to which it is bending. But better than all is prevention. If our young girls were less crammed with music, French and frivolity, if they had less excitements and were given more fresh air and exercise, we should be less frequently called upon to make a sorry patchwork in trying to remedy a hideous deformity, where there might have been and should have been a form perfect as a Hebe, needing none of our too often impotent skill.

LACHRYMAL PROBE SYRINGE.

BY

E. MACFARLAN, M. D.,

SURGEON TO THE NEW YORK OPHTHALMIC HOSPITAL.

LACHRYMAL PROBE SYRINGE.

This syringe is presented to those engaged in the practice of Ophthalmic Surgery as possessing an advantage over the Anel syringe which, at a single glance, is very apparent.

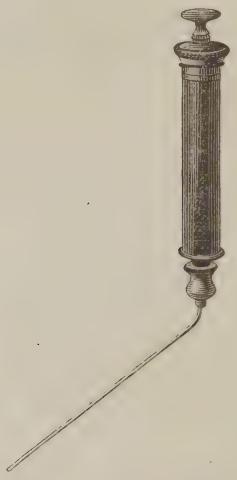
Anel's syringe must be introduced through the punctum lachrymale into the canaliculus, and then only small quantities of astringents in solution can reach the lachrymo-nasal duct, and although the canaliculus be laid open, yet the sharp point of the syringe cannot be introduced with safety to the sac, nor can it be passed beyond it into the nasal duct.

The lachrymal probe syringe combines, as its name implies—the probe and syringe. The probe portion is of the same length and size as Bowman's No. 8 probe, and is bent at an angle with the syringe, so that the latter, if detached, may be conveniently screwed on; the probe, however, need not be detached, as it will pass through the laid open canalicules just as readily by the dexterous surgeon as when separated from the syringe; the introduction into the lachrymo-nasal duct being conducted in the same manner as when using Bowman's probes.

The syringe does not press against the edge of the orbit, and the piston is easily managed by the operator.

The surgeon will find the probe-syringe a most valuable assistant in completing the cure of mucocele, lachrymal abscess, and fistula lachrymalis. It is not unfrequent that after all strictures of the lachrymo-nasal duct have been removed, that there will remain an obstinate and troublesome muco-purulent discharge equally discouraging to patient and surgeon; if astringent injections can be thrown into the lachrymo-nasal duct, so as to thoroughly wash the secreting surface, then a cure may be effected. The lachrymal probe syringe fully accomplishes this desired result, the patient being relieved of an exceedingly annoying disease, and the surgeon thereby adding to his reputation.

This instrument is manufactured by Tiemann & Co. The probe is made of silver and the syringe is hard rubber, holding about forty drops, the whole being small enough to place in a case made by Tiemann & Co., especially for such instruments as are used in Bowman's operation for obstructions of the lachrymal apparatus.



Lachrymal Probe Syringe, one-fourth size of original.

ON AN IRIDECTOME.

BY

LOUIS ELSBERG, M. D.,

OF NEW YORK.

ON AN IRIDECTOME.

THE brilliant results achieved by iridectomy have placed this operation in the front rank of modern oculistic procedures. Since experience has proved its harmless character, as well as its incalculable advantages, even in the presence of an iritis or disease of the cornea, the field of its application has been enlarged in an unprecedented manner. At the present day, it must be confessed, whether as a curative agency for that previously irremediable disease *glaucoma;* as a means to obviate some of the dangers of extraction of cataract; as a remedy for otherwise incurable fatal posterior synechia; as a preventive of recurring iritides, or of fatal consequences to the lens and iris after injuries; or as the method of making an artificial pupil for the entrance of rays of light into the eye; no operation in any department of surgery, and, indeed, no remedy in the entire domain of medicine, excels iridectomy in importance for the special object indicated. For my present purpose it is unnecessary to enumerate its various indications; nor do I intend to discuss in detail the mode of performing it. This information, obtainable from other sources, I shall assume in the possession of this section. Ten years ago it was justly said that the time had come when iridectomy should be the common property of all physicians;[1] and seven years ago Von Gräfe, in pointing out its truly life-saving character in incipient glaucomatous processes, again insisted on the desirability, nay, necessity, that every practitioner familiarize himself with this operative procedure;[2] yet in this country, of the many who treat diseases of the eye, there are but few who have ever practised this operation.

Of the three steps of the operation, as at present performed by the best oculists, viz: 1, the puncture of the cornea with the lance-

[1] Rothmund-Beiträge zur Kinstlichen Pupillenbildung, München, 1855.

[2] Von Gräfe on the Effect of Iridectomy in Glaucoma, Archiv für Ophthalmologie, bd. iii., abtheilung ii. Berlin, 1857.

knife; 2, the drawing out of the iris with the forceps; 3, the cutting off of the protruded portion with the scissors, the latter, *really the actual iridectomy*, is seldom if ever executed by the operator himself. Usually fixing the eyeball with the left hand, the right engaged with the forceps in holding the portion of iris ready to be removed, he must of necessity leave its snipping off to an assistant. I could thus claim to have made very numerous iridectomies without having ever entered the eye with a cutting instrument. The success of the operation depends on the size and peripheral excision of the segment of iris; and the necessity of leaving this to an assistant has very frequently prevented a good result from being obtained. In attempts to obviate the difficulty, the attempt has been made to let the assistant fix the eyeball (the operator entering the corneal wound with the forceps in the left hand and cutting the iris with the right), but not only does the operator usually require the full control of all the movements of the eye, which fixation in the usual way alone gives him, but even with a considerable amount of ambidexterity in the operator this can never become a generally adopted method. I have therefore for a long time tried to devise means which would enable the operator to do away with the assistant altogether, *i. e.*, to draw out the iris and cut it off with the same hand and the same instrument. This, I think, I have now accomplished by simply combining the most approved instruments hitherto employed.

REPORT

ON

TREATMENT OF CONGENITAL FISSURE OF THE PALATE BY MECHANICAL APPLIANCES.

BY

NORMAN W. KINGSLEY,

OF NEW YORK.

REPORT ON TREATMENT OF CONGENITAL FISSURE OF THE PALATE BY MECHANICAL APPLIANCES.

In presenting the subject of treatment of congenital cleft palate, I shall not attempt any anatomical description of this defect. This paper is addressed to those who are sufficiently well acquainted with the variety of form in which these cases present themselves to make any such explanation unnecessary.

The functions of the natural velum I shall not notice further than incidentally to allude to them, neither shall I enter upon any discussion of its origin, its hereditary transmission, or its physiological characteristics. The general facts regarding these cases are established and well known.

I shall offer, therefore, for your consideration, only the treatment of cleft palate by mechanical appliances.

In discussing this subject, I assume the following positions:—

1st. The only necessity of operating at all is with a view of improving the articulation.

2d. The operation of staphylorraphy, in all decided fissures of the velum, is without material results in benefiting the speech.

3d. The only treatment now known which can produce this result is the filling of the fissure with an elastic mechanical appliance.

In all the cases that have come under my observation, I have never found a patient who experienced sufficient difficulty in deglutition to justify any painful or tedious operation for its improvement. During the earlier periods of infancy, while the child is dependent upon fluids for nourishment, serious difficulties in swallowing do most certainly exist; but long before the child has arrived at a proper age for an operation, these difficulties have been nearly if not entirely overcome, and I have never conversed with a patient who was troubled with a regurgitation of food, either

fluid or solid, unless the head has been inclined considerably forward. I do not therefore regard this as so serious a difficulty as to demand a remedy for the comfort of the patient. In fact the physical comfort of an adult patient with congenital fissure of the palate is in no way seriously impaired. Hence I consider that the only difficulty worthy of notice, resulting from this abnormal development, is its effects upon the individual's articulation. The voice is not affected by it, but all those elementary sounds of articulate language, which are modified to a greater or less degree by the velum, are more or less defective, dependent to some extent upon the size of the fissure. Accordingly, I conceive that the only necessity for operating at all is with a view of improving the speech.

The operation of staphylorraphy, as the true remedy for these defects, would most naturally suggest itself to any one but partially acquainted with the results; but I believe it to be universally conceded now by surgeons, that this operation, while compelling the patient to undergo a severe and painful trial, is rarely successful in securing either a partial or entire union of the parts, and in all cases, be the sides of the fissure ever so skilfully brought together by suture, it is subject to so many accidents which cannot be provided against, that it comes to be regarded as one of the most unreliable operations the surgeon is called upon to perform. Furthermore, the only object which justifies an operation is rarely, if ever, attained. When we come to examine carefully the mechanical action of the parts involved, reason, as well as the facts, will bear out this conclusion. The office of the velum, in acting as a valve to direct the voice through the oral cavity, through the nasal passages, or permit it to pass through both, must be of that elastic nature, and under such control of the muscles, that it must perform those functions perfectly, or many of the sounds which form our language will necessarily be defective.

In cases of cleft palate where the parts have been united by suture, it has been found necessary in almost every instance to sever one or more of the muscles on each side, before the edges could be brought in contact, and the result is, even in the most favorable cases of union, that the septum thus formed is unnaturally rigid, and its flexibility and mobility very much impaired or totally wanting. It cannot be controlled as the natural velum, and cannot serve the purpose of a valve to direct the voice one way or another, but serve rather as a partition to divide the column of

sound as it issues from the glottis; in many instances rendering the articulation more defective than before the operation, as more of the voice escapes through the nares, and less of it is brought under the control of the tongue, lips, and other organs. I cannot, therefore, come to any other conclusion than that the operation of staphylorraphy is uncalled for to improve deglutition, and is a failure in its results upon articulation.

The treatment proposed to be resorted to is the substitution of a mechanical appliance to close up the fissure. All metallic obturators or other non-elastic instruments adapted to the posterior nares are useless; they can only serve to plug the nares, and might in some rare cases prevent the regurgitation of fluids, but can be of no manner of benefit to articulation. It is physically impossible for the speech to be materially benefited by their use. The only appliance now known which can produce this result is an elastic artificial velum filling the fissure throughout its entire length, restoring as nearly as possible in form the natural dome of the palate; embracing the sides of the fissure, and sufficiently long to reach during certain muscular movements to the posterior wall of the pharynx, at the same time leaving abundance of room behind it, when in its normal position, for respiration and the passage of nasal sounds.

Such an instrument as described has been brought to such a state of perfection that I have no hesitation in saying that it can be adapted to any case of congenital fissure of the velum that is usually seen, whether complicated with a fissure of the maxillæ or not. It can be made so as to be retained *in situ*, without danger of misplacement, can be worn all the time, from the first hour without discomfort, is capable of being raised and depressed and contracted upon itself, by the muscles embracing it, and is so simple that a child cannot disarrange it, to its detriment. Such an appliance renders it perfectly possible for the patient to learn to speak well. Lest these remarks should lead to an unwarrantable inference, let it be distinctly remembered that speech is a mechanical function and learned by imitation, and be the natural organs of articulation ever so perfect, their use for that purpose is an acquirement. So with these cases; let the restoration of the defective organs be ever so remarkable, the full benefits to be derived from their use is the result of perseverance and time. The application of this instrument for nearly a dozen patients during the past five years, and the uniform general result justify me in

stating it as above. The physical and mechanical difficulties to be overcome in the adaptation of this artificial velum are a serious obstacle to the operator, for on the nice adjustment of the instrument to all the parts surrounding the fissure depend entirely the comfort with which the patient wears it, and the consequent use he will make of it. It is essential that it should be accurately adapted to the superior or hidden portion of the cavity, as well as to the inferior or more exposed. To secure this adjustment, impressions of the whole cavity are taken in plaster of Paris. These impressions reveal the conformation of all those parts hidden from the eye, including the floor of the nares, the inferior turbinated bones, the vomer, and the chamber and walls of the pharynx as low down as the fauces. From these impressions plaster models are made in the usual manner, to which models the artificial velum is adapted.

The material of which the velum is made is elastic vulcanized rubber, prepared with special reference to this object, and possesses sufficient flexibility to be carried by the muscles in any direction they may act upon it; also sufficient elasticity to regain, and firmness to keep, its position when the muscles are relaxed. It is so delicate in its structure, that I have never known a single instance of irritation or inflammation of the tissues in contact with it, when properly adapted.

The material is moulded into form and vulcanized in metallic moulds, and comes from the mould comparatively finished, ready for use. The metallic mould is preserved, and the number of vela for that particular case can be multiplied indefinitely. It is supported *in situ*, by resting on the superior surface of the palatine or maxillary bone in the vicinity of the apex of the fissure. It is retained by a very simple attachment of gold connected with it near its apex, and reaching to one or two of the teeth, with sufficient hold around the tooth to prevent its slipping off. But even the presence of natural teeth is not essential to retain it firmly and properly in its position, as in one case which I had under treatment the patient had not a natural tooth in her mouth, and an entire upper and under set of teeth was adapted, and to the upper set of teeth was attached the artificial palate, which was worn with as much satisfaction as in any case that has come under my observation. The difficulty of obtaining a correct impression of those delicate structures in their relaxed and quiet state was a most serious obstacle to success in my earlier efforts, and at that time it

was my practice to put the parts under a limited course of training until they would bear handling somewhat without involuntary motion. Since then I am satisfied that this course has been rendered necessary only by my fear of trouble rather than from any uncontrollable irritability of the parts involved. While formerly I allowed several days to elapse before attempting to get an impression, in all my later experience I have taken the impression of the whole cavity and its immediate surrounding structures at one sitting, and rarely is any effort made to swallow until the plaster has hardened sufficiently to resist disarrangement. There are many points of physiological importance developed by this experience which would be most interesting to dwell upon, did not the limits of this paper prevent my presenting them in full. To some of them, however, I must briefly recur.

The intellectual capacity of the patient exercises a greater control over the rapidity and amount of progress in improvement than the peculiar physical conformation of the defect. A musical ear cultivated to a nice distinction of sounds is of material benefit in making the most of this appliance. The age should also be taken into consideration, and as early an age as the patient would take an interest in developing its benefits would undoubtedly be preferable. The improper position in which some of the organs of speech are placed in the efforts of the patient to articulate distinctly, becomes so habitual as to be almost impossible to overcome, and manifestly the earlier the age at which this is attempted before these habits become firmly fixed, the better. I have, however, in one instance adapted an instrument for a patient over thirty years of age, and in another for one over forty, both of whom derived very material benefit from its use within a very few months. Again, the sensitiveness of the individual to the defect, the mortification experienced, in the exposure by their speech of this deformity, will prove a powerful incentive to their practice and the consequent rapidity of their improvement.

It is astonishing with what entire freedom from discomfort or annoyance the velum is worn immediately on its introduction. I have never had a patient where there was any irritation or inflammation in consequence of wearing it, and only in rare cases have they even experienced lameness of the surrounding muscles. The experience of persons wearing the velum is most interesting, especially in the earlier stages. Time will not permit me to give a detailed report of cases. I can only briefly state those points

which seem common to them all. Its immediate effect upon articulation is such, as a general rule, that the friends do not understand them as well as before. In fact they seem for a few days to speak better without it than with it. This period gradually passes into the second stage, when they can speak better with it than formerly without it. At this point it is noticeable to those who have watched these developments, that while the individual most certainly articulates far more distinctly with it than they formerly did without it, they also articulate much more distinctly without it than they formerly did without it; so that at this second stage, as I term it, it is almost impossible to show to a stranger any decided contrast of the speech with it and without it. But great encouragement is derived from the fact that, manifestly to all, the articulation is on the whole more distinct than formerly. In a few months, this gradually merges into the third stage, when the patient has acquired far more control of the muscles, and the former misuse of the organs is somewhat overcome; the improvement is most decided when the velum is in position, but when out, the power of articulation seems almost lost.

Its effects on deglutition are not remarkable. Ordinarily it produces no annoyance in eating or swallowing; it is tolerated without inconvenience. The patient never having experienced any difficulty of deglutition, cannot of course realize in that direction any improvement. In some cases, however, the first impression is that fluids cannot be swallowed as readily as formerly. This earlier experience soon passes into that when they feel far more comfortable in every respect with it than without it.

With reference to the universality of this application, I am of the opinion that but very few cases are brought to the notice of the surgeon for which the operation of staphyloraphy would be preferable. There are some instances on record where there was an entire division of the velum, but the sides of the fissure came nearly or quite in contact when the muscles were relaxed. Such a case would clearly invite a surgical operation. There would be no consequent rigidity of the newly-formed velum, and it would in all probability perform its natural functions. Cases have been brought to my notice where the fissure was slight, sometimes being hardly more than a division of the uvula, and again where the fissure extended but little distance into the velum. These are all exceptions to the general presentation, and a surgical operation for them would probably be preferable.

REPORT

ON

PUERPERAL TETANUS.

BY

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KEOKUK, IOWA.

REPORT ON PUERPERAL TETANUS.

TETANUS, under whatever form it may present itself, or whatever the cause which may produce it, is a formidable malady, and in a large majority of cases has bid defiance to all remedial agents.

Regarding the causes which have produced it, it has been divided into idiopathic, traumatic or diastaltic, and toxic tetanus. The first is the result of constitutional morbific changes which have taken place, resulting in the production of certain morbid poisons, which circulating in the blood are carried to the spinal axis which they impress, and the result is that the peculiar phenomena are produced. The *traumatic* variety has been referred to a distal irritation produced by mechanical lesions in which a distal nerve has been injured, which being excited, the irritation is conveyed to the spine, and through reflex influences to the muscles. The *toxic* division is produced by an agent introduced into the circulation, then distributed to the spine where its specific powers are acknowledged and the muscles are thrown into a tetanic state.

But the disease has appeared under other circumstances than those usually recognized and related, and of such frequency and uniformity as to suggest the propriety of a separate division and denomination, and therefore the designation which has been adopted by others and found at the head of this paper. Whether the distinction is legitimate further investigation must determine, when a more extended observation and experience shall have thrown more light upon the subject; enabling us to say whether there is anything in the puerperal state peculiarly calculated to awaken the phenomena, and differing in its nature from the other causes believed to be active in its production. The facts referred to before, of its frequency and uniformity, under certain puerperal conditions, are circumstances which claim for it further investigation and research. It is by no means inconsistent with its nature, nor incompatible with the law of causation to ascribe to it a two-

fold origin or a combination of causes, traumatic and idiopathic, and an examination of the cases which follow may to a certain extent favor this idea and give force to this suggestion.

It is worthy of remark that in our recent works on midwifery, and the standard authorities on this subject, no mention is made of this disease as one ever growing out of the puerperal condition. Because of this omission the practitioner, although on the alert for other well known results, is not taught to expect one of so formidable a character. From this fact, and in order to place this frightful malady among those which may follow, although not with that frequency with which other morbid manifestations occur, and to awaken the attention of the medical mind to an investigation of the predisposing and exciting causes in its production, the subject is now presented to the profession with a compilation and the history of the cases which we propose to present.

It is much to be regretted that the subject has been so much overlooked and neglected, and yet Dr. Simpson, who is the only recent authority on the subject, refers back to Aretæus, who, when enumerating the causes of tetanus, includes abortion among them. From the report of the former author, however, it is by no means confined to abortion, for he has collected and reported a number of cases which occurred *post partum* with one in which pregnancy did not exist, but simply a diseased condition of the uterus.

Before proceeding, however, with a detail of the cases, we would call the attention of the reader to the results of the experience of Dr. Simpson when he says that "it is fatal in its issue," and, therefore, to be regarded as truly formidable. "Lesions of the uterus," he says, "are not liable to result in traumatic tetanus," and in this opinion Dr. Reid concurs, and says "that he never saw a case resulting from internal injury." Certainly it is a very unusual occurrence, and yet in the cases reported by Dr. Simpson, which occurred *post partum*, one occurred after the Cæsarean section, another in which delivery had been preceded by a surgical operation, and then the case of Dr. Little, of Dublin, Ireland, which will be found in the following pages, to which again may be added the case which resulted from the removal of the polypus from the uterus of the unimpregnated female.

The cases which followed abortion will now be presented. Those reported by Dr. Simpson are here embodied in a condensed form, preserving the most striking and essential features. It was

deemed important to do so in order to exhibit the number of cases and the peculiar circumstances preceding and attending, as well as the result of all the cases. To this catalogue will be added in detail the cases which occurred under our own observation with others collated and collected from other sources. In referring to the cases reported by Dr. Simpson, the author is moved to it by a desire to present in one paper all the cases reported, so that the statistics and the phenomena of the disease, as it has thus far been met with, will be of ready access, and constitute a nucleus to which interesting and valuable additions may be made from time to time. This, together with the fact that the observations of Dr. Simpson may not have been accessible to all those who may find them here embodied, is the apology offered for reproducing them at this time.

The *first* which will be introduced was the case which occurred in the unimpregnated state of the uterus. The subject had long suffered from menorrhagia in consequence of a polypus of the uterus, which, being attached to the interior of the cavity of that organ, was finally, by surgical interference, removed therefrom. On the ninth evening after the removal of the tumor, she was seized with tetanus, and died in fifty-five hours after the supervention of the first tetanic symptoms.

The *second* was one of pregnancy advanced to the third month. Large clots were discharged, and in three days the patient was comfortable. No mention of expulsion of fœtus or placenta. Seven days after the first symptoms of abortion, she complained of sore throat and stiffness of the jaws. These symptoms increased, spasms ensued, and in three days after the advent of these symptoms the patient died.

The *third case* was one in which abortion took place, and in which, two weeks after, the patient was seized with symptoms resembling cynanche parotidea. The next day she was unable to open her jaws; the day following the symptoms were aggravated; and the next, tetanic spasms came on, which rapidly increased, and death ensued in a few minutes. No mention is made of the expulsion of ovum, but, it is presumed because the word "abortion" is used.

Fourth case.—Pregnancy advanced to between two and three months. Seized suddenly with hemorrhage, which soon ceased. Pulse quick and feeble. No positive evidence that the ovum was expelled. In six days, stiffness of jaws, trismus, spasms, opisthotonos complete. Died in three days from first symptom of tetanus.

Fifth case.—Duration of pregnancy not given. Much hemor-

rhage; ovum supposed to have been discharged. In seven days tetanic symptoms, severe paroxysms, threatened strangulation; died in sixty hours.

Sixth case.—Miscarried. Ovum expelled, it is presumed. Trismus; but attracted little attention from the interne of the "Hôpital Cochin" in which the patient was confined. Spasms slowly extended to all parts of the system—opisthotonos and death. Autopsy showed no lesion of brain, spinal marrow, or other viscera.

Seventh case.—Pregnant three months, when abortion resulted from sudden emotion. A sudden and copious gush of blood was the first symptom. Checked by tampon, but recurred with violence on the next day. No expulsion of ovum, but shreds, having the appearance of decidual membrane, were discharged. Trismus on the twelfth day after the first symptom of abortion, and in two days after this again, spasms occurred, were relieved on the fourth, were renewed on the sixth, and on the next day, the seventh, the patient died. A peculiarity was observed in this case, in that, instead of the mouth being resolutely closed, it was thrown open.

Eighth case.—Ovum was discharged, it was supposed. In eight days after, the muscles of the jaws became rigid, and on the next day were determinedly closed. Spasms followed with opisthotonos, and death in seventy hours from tetanic symptoms.

Autopsy showed the uterus to be of ordinary size, lining membrane emphysematous, in substance similar to the lung, but no decomposition.[1]

The first case in the foregoing catalogue occurred without pregnancy, but had long suffered from hemorrhage. In all the other cases there must have been more or less hemorrhage. In the second, fourth, fifth, and seventh cases the discharge was copious. This fact should be borne in mind. May not the exhaustion of the vital powers induce irritability and predispose to spasm? Kusmaul says: "In man, and, as it would appear, in all warm-blooded animals also, a rapid and sufficiently copious loss of blood will give rise to general convulsions." Marshall Hall, too, in his treatise on bloodletting, gives several instances in which convulsive movements were induced by excessive loss of blood. Sir Astley Cooper also entered upon some satisfactory experiments, showing with much

[1] In a majority of these cases the average duration of life after the advent of the first symptoms was nearly sixty-seven hours. In the 7th case they appeared and were relieved several times within seven days.

force the truth of Marshall Hall's doctrine of *excitable cerebral provinces.*

In these cases we find the cerebro-spinal system especially involved arising out of this general humoral exhaustion, but in the phenomena under discussion the sympathetic and spinal systems appear to be concerned chiefly, as there are no cerebral symptoms. The irritation begins in the sympathetic, but ultimately the spinal system is involved through connecting filaments, and hence the particular form of convulsive movements.

Ninth case.—This, the first of three cases which were observed by the author, occurred in this city (Keokuk, Iowa) in the spring of 1850. The patient was a young married lady, and aborted in the third month of her pregnancy. She was of nervous temperament, and somewhat inclined to melancholy and great dejection of spirits. The fœtus was expelled shortly after the advent of the flooding; the placenta, it was supposed, was still retained. The hemorrhage was so considerable and continued so long that the general surface was blanched and the patient much exhausted. The pulse became small and frequent, and the discharge from the vagina was pale and watery. Seven days from the appearance of the hemorrhage I was requested to visit her.

Found the os uteri closed and excessively sensitive to the touch. Any proceeding with the view to ascertain the fact as to whether the placenta had passed was found to be impossible. Was assured by patient and attendant that it had not.

Although the discharge had somewhat diminished and its character more of serosity, yet I determined upon the use of the tampon to arrest it, and at the same time to induce the uterus to throw off the placenta. At the same time stimulants, narcotics, and astringents were used with cold cloths to the vulva.

The following day showed no abatement of the symptoms; on the contrary an exaltation of all, with the presence of new phenomena. The os uteri continued to be resolutely closed, and there was an exaltation of the sensibility. There was a fetid discharge, which, when the tampon was removed, was as free as on the day preceding. There was pain extending from the junction of the spine with the sacrum to the base of the occiput, with the most painfully acute sensibility over the whole surface, for the slightest touch, and even a breath of cool air, were painful. The tongue was furred, the urine scanty, the skin dry, although the temperature was rather lowered, and the pulse had increased to

120, with decidedly a thread-like feel. There were restlessness and sleeplessness, and a general feeling of mental and physical disquietude and irritability. The treatment was opiates, and the local application of ext. belladonna smeared upon the os uteri, which was followed during the same day with topical application of chloroform vapor and a liniment composed of the ext. belladonna and chloroform to the spine.

The above symptoms increased during the next twenty-four hours, and at the end of the above period there was deep sighing, depression of spirits, and a hopeless state of the mind. There was no abatement of the sensibility of the os to the touch; the skin was still dry, but its temperature still lower; suspension of urinary secretion, the tongue smooth, red, and dry.

Thus the symptoms continued during the night, but in the morning there was, to me, in such cases, an unusual set of phenomena inaugurated. There was rigidity of the muscles of the jaws, of the larynx and pharynx, so that there was difficulty of speech, respiration, and deglutition. Pain increased along the spine, the muscles in that region being rigid; all movement performed with difficulty, and attended with increased suffering. Spasms with opisthotonos speedily followed.

There was now no difficulty in diagnosing the case to be one of tetanus, and in defiance of narcotics and antispasmodics, with kindred and auxiliary agents, it terminated fatally, in forty-eight hours after the appearance of the first symptoms of the disease, with the most fearful and frightful demonstrations of suffering. To the last the os uteri remained rigidly contracted, and such was the excessive irritability of the organ that the "touch" would bring on a tetanic spasm with opisthotonos.

An autopsy was not permitted, and the doubtful question as to whether the placenta was retained was not settled. This was the first case which had, after many years of active practice, fallen under our notice, and this fact, together with the solicitude which the superior accomplishments and excellence of the lady herself inspired, rendered the case one of peculiar interest.

The *tenth case* was also committed to my care on the 28th of March, 1858, in this city. The lady was of delicate constitution, and pregnant for the third or fourth time, but miscarried four days prior to the above date, when I visited her. The history of her gestation, together with the size of the fœtus, indicated that she had reached her third month. The expulsion of the fœtus was

preceded by some hemorrhage, but no pain. Preceding the hemorrhage there was a discharge of liquor amnii. The placenta did not follow the fœtus. The flow of blood continued, but not copiously; and, although somewhat enfeebled, she continued her domestic duties to a limited extent. In this condition I found her, and, deeming it important to understand more of her condition, proposed a vaginal examination, but was waived by her from a sense of delicacy, and because she believed it was not important. Quiet and repose in a horizontal posture were enjoined, urging meanwhile the importance of an examination if no change in her condition took place by the time of my next visit. I then left with the understanding that, if she did not improve, she would request me to attend again. This she did not do until the evening of the 30th, nearly three days after. Failed again in obtaining her consent to an examination. Left as before, to be summoned when necessary. Saw her again on the 1st, 2d, and 3d days of April, each time urging, and as often failing to obtain, an examination, although the hemorrhage continued, and was manifestly increasing, from the symptoms of enfeeblement. The remedies directed for its suppression succeeded, and she was free from it until the 12th, when it recurred again somewhat violently.

Now for the first time I was permitted to make the "touch," when I found the os rigidly closed, notwithstanding the long-continued flooding, which, it would be supposed, would relax the structures. Not only was it closed, but irritable, so much so, that the contact of the finger produced so much suffering as to be almost unendurable.

At this juncture Dr. Allen, my associate then in practice, saw her with me and concurred in the opinion that an attempt to search for the placenta was impracticable, because impossible to effect an entrance within the cavity of the uterus. All the remedies usually adopted for the purpose of arresting the bleeding were alternately adopted, including the tampon, but the only effect was to moderate, but did not suppress it. The ergot was given to awaken uterine contraction with the view to the expulsion of the placenta, because of the assurance that it was retained from the circumstantial evidence being afforded by the persistence of the hemorrhage and the fetor of the discharges.

Febrile symptoms supervened, which were combated by suitable remedies and anodynes to procure sleep, which, for more than forty-eight hours, had been denied to her.

On the 20th, twenty-seven days after the expulsion of the fœtus, trismus showed itself, combined, as I thought, with some manifestations of hysteria. There was the usual difficulty in swallowing, there was pain in the articulations of the lower jaw, and as the mouth could be but slightly opened, fluid food was given in small quantities and often repeated, which with her drinks was swallowed with great difficulty.

The symptoms increased during the night, the jaws became permanently closed, the head drawn back, the lower limbs forcibly extended, and the points of her fingers pressed tightly in the hollow of the hand. In fine, we had all the symptoms presented in this case, of tetanus, which increased in violence until death closed her sufferings, which took place on the night of the 22d, just forty-eight hours from the first appearance of trismus.

The treatment consisted in the exhibition of narcotics, stimulants, and anæsthesia with chloroform, which last she took almost constantly, affording her the only relief she experienced. Ice was applied to the spine, the oil of turpentine by injections, and often repeated.

The bowels being constipated, croton oil was dropped upon the tongue. Her mind remained to the last clear and unclouded, and she was fully conscious of her hopeless condition.

The *eleventh case*, and the third which has fallen under my observation, occurred in the autumn of 1859, and at a distance from this city. I did not see the patient until a few hours before its fatal termination. The history, afforded by the medical gentleman in attendance, revealed the fact that the lady had aborted between the second and third month of her pregnancy, which was produced by a fall when in the act of gathering fruit from a tree. A most violent hemorrhage was the first symptom, and in a short time the expulsion of the ovum entire. This was followed by moderate flowing during five days succeeding, to control which, opiates, astringents, the application externally of cold water, cool acidulated drinks internally, and the tampon were persistently employed. I also learned that the introduction of the finger into the vagina occasioned pain, and in a particular manner, when brought in contact with the os uteri, the suffering was so acute as to require the explorer to desist. The tampon, of course, when introduced caused so much pain that it was removed because too intolerable to be long borne. In five days trismus presented itself, and was speedily followed by tetanic spasms. Sometimes there was opisthotonos, and this was exchanged

for pleurothotonos. Died in sixty hours from first tetanic symptom. In no one of these cases was permission obtained for a *post-mortem* examination, and therefore, much to my regret, I am unable to speak of morbid appearances.

The *twelfth case* is one recently reported by Dr. Atlee to the Philadelphia County Medical Society, and which the author kindly transmitted to me. I herein transcribe the report in full.

"Mrs. D——, aged twenty years, and about eleven months married, was taken with flooding on the night of January 18, 1860. I was called up before day on the 19th to visit her. She was full two months gone. There were pretty free hemorrhage and some pain. No other cause for the threatened abortion was assigned than a very long walk she had taken some time before. On making a digital examination I found the uterus proportionally developed for the period of gestation, the os uteri was closed and thrown back toward the sacrum, and the cervix was not expanded. The parts seemed to be peculiarly sensitive, but as the patient was laboring under considerable nervous excitement I attached but little importance to this symptom. In this condition of the os and cervix uteri, I thought it proper to attempt to save the ovum, and for that purpose I prescribed acetate of lead and opium, cool drinks, perfect rest and quietude. As there was no prostration I avoided the use of the tampon, knowing that it would defeat the object I had in view, particularly in the tender condition of the cervix. I made two more visits during the same day, and was gratified to find a gradual diminution of both hemorrhage and pain, and before night an entire subsidence of the latter. I continued to make daily visits until the 23d, not deeming it necessary to make another vaginal examination, as her improving symptoms all favored the idea of recovery. The pain had altogether ceased, although a slight red discharge continued.

"On the morning of the 23d she had a return of the expulsive pain to such an extent that I again made an examination. The os uteri was now open enough to admit the index finger easily, and enable it to pass around the partially protruded ovum, and the cervix was expanded. The parts were still sensitive. Being now certain that abortion could not be prevented, I suspended the acetate of lead and opium, and favored its occurrence by ordering ʒj of the wine of ergot every two hours. On making a visit in the after part of the day, and examining again, I found the ovum almost entirely out of the os uteri and held *in situ* by the usual

attachment between it and the interior of the uterus above. In accordance with my usual practice I overcame these slight adhesions with my finger and removed the mass. This occupied but little time, although the patient complained considerably during the manipulation, particularly while dislodging the mass from the vagina after it had been detached from the uterus. When entirely removed she was easy. On leaving her for the night I ordered a teaspoonful of paregoric to be given in case of pain.

"The mass removed resembled placenta and its membranes, but no embryo was discoverable.

"Next day, the 24th, the patient was very well and very cheerful. Her bowels were opened freely by medicine.

"On the morning of the 25th I was sent for before my usual time for visiting. On arriving at the house I found the patient holding a wooden pencil between her teeth to keep the jaws separated, and the muscles of the jaw were rigid, she being unable to open the mouth voluntarily. She had previously informed me that she was exceedingly nervous and subject to hysteria. The idea of tetanus not entering my mind, I at once supposed, and so announced it, that the attack was hysterical, and with this view I ordered repeated doses of Hoffmann's anodyne. I believe she succeeded in swallowing one dose of it with difficulty, but no more, and the muscles of deglutition seemed to become involved. On a subsequent visit the same day, in consequence of the inability of swallowing, I ordered her enemata every two hours of tincture assafœtida, and sinapisms to the spine and stomach. The tonic rigidity was still confined to the muscles of the jaws. Very little change in the symptoms occurred during the whole day.

"During the night of the 25th her mother informed me that she had a spasm, and, on making a very early visit on the morning of the 26th, I was convinced that the disease was tetanic instead of hysterical. The muscles of the neck and back had become involved so that the head was permanently and violently drawn back, while the tonic spasms of all these parts rendered everything as hard as a board. The usual acute pain at the lower part of the sternum, piercing through to the back, was, however, entirely absent, and at no time afterwards manifested itself. The pulse was accelerated, but soft and voluminous. The throat seemed phlegmy, and the patient complained of a peculiar tightness there, and oppression in breathing, and frequently worked away frothy sputa from the mouth. During all this time, and up to the period of death, a

piece of gum elastic was kept between the front teeth to keep them apart.

"Satisfied of the existence of tetanus, I now inquired whether she had received any wound, had pricked herself with her needle, had trod upon a nail, or had in any way hurt herself. She at once asked if she had hydrophobia, and immediately said that the dog had scratched her hand about two weeks before. She held up her hand, on the back of which I noticed the mark of a very superficial wound, but which I considered too trifling to account for the symptoms. I now inquired into the character of the discharges. The urine was freely secreted and passed, and two napkins sufficiently stained with lochia were brought to me, and which had been removed during the night previous. I next made an examination per vaginam. The parts were moist, free from heat, and entirely free from the tenderness which had existed before the abortion. Strong pressure over the whole abdomen was unattended by any soreness. She had no pain anywhere.

"A large number of leeches was immediately placed over the cervical and dorsal vertebræ, and a considerable quantity of blood removed, and four drops of the tinct. veratrum viride were ordered with the assafœtida as an enema every two hours, and as deglutition was impossible, I administered by inhalation a mixture of two parts by measure of sulphuric ether and one part of chloroform. The effect of the anæsthetic was most soothing and gratifying. She was kept nearly constantly under its influence. It had the effect of preventing the opisthotonic spasms, and causing her to sleep more or less during the day. When the effects passed off she would crave for more. The pulse also came down from 130 to 105.

"I visited the patient every hour during the day, and finding that the disease was so admirably controlled by the treatment, I flattered myself that she might yet recover from it. But in the evening the treatment began to lose its effect, and between eight and nine o'clock a violent spasm, lasting ten or fifteen minutes, came on, and which exhausted her a great deal. This was followed by a flagging pulse and labored breathing. I immediately ordered stimulating and nutritious injections and chloroform liniment to the spine to be associated with the anæsthetic. But successive paroxysms returned with great violence, which caused her to sink rapidly, and she died at 11½ o'clock P. M. of the same day."

Thirteenth case, reported by Mr. Bagunjee Dossabhoy, of Bombay.

Early in the morning of the 24th of April, 1853, a Parsee[1] female, aged twenty-six, mother of four children (the youngest a year and a half old), in the third month of pregnancy, after suffering for several hours during the night from uterine pains, had hemorrhage to come on. The os uteri was dilated a very little. She was treated by dilute sulphuric acid and opium with cold applications; but the pains and the discharge continued throughout the day, and at six P. M. an embryo was expelled. The pains then ceased, and the hemorrhage merged into the ordinary sanious discharge. On the 30th, difficulty in opening the jaws to the full extent was complained of; but there were no other symptoms of tetanus until the 5th of May, when the abdomen became somewhat hard and tympanitic. No stiffness of any muscles except those of the jaws. The pulse continued at 100, small and compressible. She remained in this state until the 17th, when spasmodic contraction of the back and lower extremities came on; and there was increased stiffness of the neck and abdomen. The pulse was 112, of same character as before. She was treated by hemp, quinine, and generous diet, and recovered by the middle of June, menstruation having occurred at the usual period, but rather profusely.

The foregoing comprise the cases, so far as I have been able to glean from various sources, occurring from or following abortion. I shall now proceed with those which have followed parturition. Of these, Dr. Simpson reports seventeen cases, which are presented in a condensed form from his more detailed account.

The *first case*, post-partum, was one of natural labor, the tetanic symptoms occurring in six days thereafter. Died in six days after the tetanic invasion. Child living.

The *second* in seventy-two hours after delivery. Laceration of vagina and perineum. Proved fatal in three days. Child died also with trismus and jaundice.

The *third case* did well for three or four weeks. Hemorrhage occurred at the end of this time, which required the vagina to be plugged. Plug not removed for two or three days. On the sixth day after the advent of the hemorrhage, tetanic symptoms occurred. In three days she died.

The *fourth* was characterized by a natural labor and a large child. In endeavoring to remove the placenta, the cord broke near its connection with the former, which was unfortunately allowed

[1] A fire-worshipper—a numerous sect, residing near Surat and Bombay, India.

to remain during five days. On the sixth day a portion of the placenta was removed, and ergot produced the expulsion of two more decomposed and fetid masses. On the seventh, symptoms of trismus exhibited themselves, which in a short time ripened into tetanus. Opisthotonic spasms succeeded, attended with much suffering. In eight days after delivery she died.

The *fifth case.*—Patient had been exposed to cold. Suppression of the lochia. Tetanic symptoms in four days after delivery, and died in three days after their supervention.

The *sixth case.*—Improper exposure four days after delivery. Suppression of lochia. In twenty hours after, tetanic symptoms. Disease continued ten days, and finally yielded to repeated bleedings, leeches, musk, and valerian.

The *seventh case* was that of a woman who was attacked with eclampsia at the seventh month of her pregnancy. In two days after was delivered of a dead fœtus. Five days after she drank largely of cold water. Shivering, trismus, and finally complete tetanus. Warm bath to restore the lochia, and blisters constituted the treatment. In forty days recovered.

The *eighth case.*—Sixteen days after confinement was exposed to cold. Suppression of lochia. Bleeding, leeches, and warm bath. Recovery.

The *ninth case.*—A fortnight after delivery was exposed to cold. Same night, trismus. Next day, two or three tetanic spasms, and died.

The *tenth case.*—Trismus two days after delivery. Died.

The *eleventh case.*—Tetanus in a few days after birth of the child, and in five from tetanic symptoms, died.

The *twelfth case* was one of hemorrhage demanding version. In five days, tetanus. Died in a few hours after.

The *thirteenth* and *fourteenth cases.*—Tetanus followed Cæsarean section. Death in both cases.

The *fifteenth* was one in which a surgical operation had been performed, followed by hectic. In two months was delivered of twins, and in one week died from tetanus.

The *sixteenth case* was without particulars; and in

The *seventeenth* and *eighteenth cases* the causes were not specified, but death occurred in both cases.

To the foregoing from Dr. Simpson, the following are added, with more extended details:—

The *nineteenth case* in this category is from M. Barbieri, of Italy, and published in the *Gazette Med. Ital. Toscana.*

The patient was thirty-two years of age, and robust until she had nursed her first child some weeks. The child died at ten months, up to which time the mother was much annoyed with twitchings of her feet and legs. Immediately after, the twitchings ceased.

A second child was born, and as soon as lactation commenced, the twitchings commenced also, extending this time to her thighs and loins. The child died in seven days, and with its death subsided her sufferings.

Thirteen months after this, again, another child was born, and as soon as the milk began to flow freely the spasms returned, and in this instance periodically, every tenth day, lasting twenty-four hours. In ten months the child died, and with its death the spasms again subsided.

Two subsequent confinements were followed by the same phenomena, in both of which the children were weaned when the spasms ceased. At date of report the woman was in excellent health.

The *twentieth case* has been furnished to the author by Dr. F. T. Hurxthal, of Massillon, Ohio. The patient was a lady of twenty years, who was confined with her first child in September, 1851. Labor natural, and the child large. The labor had been somewhat protracted, owing to rigidity of soft structures. No unpleasant symptoms until the evening of the second day after parturition. Her husband observed about midnight that she could not articulate so as to be understood clearly. At daylight was called, when the following symptoms presented themselves. Decubitus, body inclining to one side (pleurothotonos); great anxiety of countenance; trismus complete; sense of hearing normal, as evinced by turning her eyes to the person speaking, but unable to turn her head; rigidity of muscles; retention of urine; pulse 140, small, quick, and wiry; skin bathed in perspiration; lochia normal in quantity; the jaws resolutely closed, every attempt by prudent, forcible means to separate them proving futile. Compelled to rely upon endermic remedies, and others by enemata. To carry out the first, vesication by hot water, and the denuded surface dressed with morphia; bowels emptied by injections, and the bladder by the catheter. Blood was also drawn freely from the arm, but nothing done appeared to accomplish any good, or in any degree to mitigate the

severity of the symptoms, when, after thirty hours, death, relentless in its demands, relieved her of her earthly pangs.

It appeared from subsequent information that this lady fell a few feet (about three) a few days before her confinement, the force of the fall having been upon the coccyx, at which time she assured others that she heard a "crack." To this was added the fact that the patient weighed 170 lbs., and a fracture suspected. If so, the case might have been regarded as one of the traumatic variety. But, as the labor was natural, would it have been so had there been fracture? It would have been readily detected by the greater tumor posteriorly formed by the head being forced in that direction, with a strong probability also of laceration of perineum.

In this, the force of the concussion, doubtless, and parturition were the exciting causes.

The foregoing shows the necessity and importance of further investigation, and as the author is informed that other cases have existed which have not been reported, he would respectfully invite reports of all cases as early as convenient, in detail, in order that they be added to those already given, and reported from time to time as voluntary contributions.

PRIZE ESSAY.

ON THE

PATHOLOGY OF JAUNDICE.

THE YELLOW COLOR OF THE SKIN DUE TO THE PRESENCE OF HÆMATOIDINE.

BEING THE

PRIZE ESSAY TO WHICH THE AMERICAN MEDICAL ASSOCIATION AWARDED THE GOLD MEDAL FOR MDCCCLXIV.

BY

S. FLEET SPEIR, M. D.,

SURGEON TO THE BROOKLYN CITY DISPENSARY; CURATOR AND MICROSCOPIST TO THE BROOKLYN CITY HOSPITAL; DEMONSTRATOR OF ANATOMY IN THE LONG ISLAND COLLEGE HOSPITAL; FELLOW OF THE NEW YORK ACADEMY OF MEDICINE; MEMBER OF THE NEW YORK PATHOLOGICAL SOCIETY, ETC.

Dermocholepoesis.

DESCRIPTION OF THE PLATES.

The plates represent the microscopic appearances of the tissues, magnified 250 diameters. On account of the great similarity of these cases, the illustrations may be applied indiscriminately to any of the cases.

PLATE I.

Fig. 1.—Black Vomit.—*a*, Granules of hæmatoidine; *b*, Sarcinæ ventriculi; *c*, Muscular fibre from ingesta; *d*, Altered starch corpuscles; *e*, Blood-corpuscles; *f*, vibriones; a few oil-globules are seen.

Fig. 2.—Liver.—*a*, Liver-cells; *b*, Granules of hæmatoidine; *c*, Blood-crystals.

Fig. 3.—Kidney.—*a*, Granules of hæmatoidine; *b*, Blood crystals; *c*, One of the tubuli uriniferi and epithelium.

Fig. 4.—Spleen.—*a*, Granules of hæmatoidine; *b*, Altered blood-corpuscles; *c*, Fusiform cells.

Fig. 5.—Urine.—*a*, Granules of hæmatoidine; *b*, Blood-corpuscles; *c*, Epithelium from bladder; *d*, Epithelium from pelvis of kidney; *e*, Epithelium from ureter; *f*, Urate of ammonia.

PLATE II.

Fig. 1.—Conjunctiva.—*a*, Fibrous tissue; *b*, Granules of hæmatoidine.

Fig. 2.—Skin.—*a*, Fibrous tissue; *b*, Granules of hæmatoidine; *c*, Epithelium; *d*, Fat cells.

PLATE I.

Fig. 1.

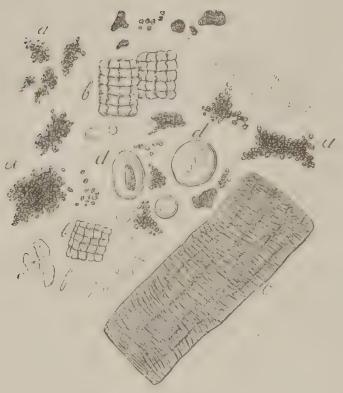


Fig. 2.

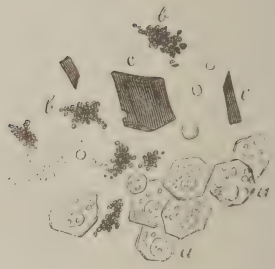


Fig. 3.

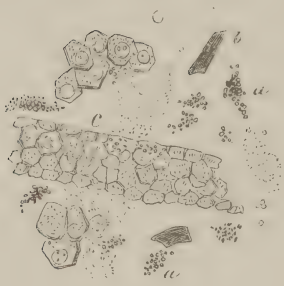


Fig. 4.

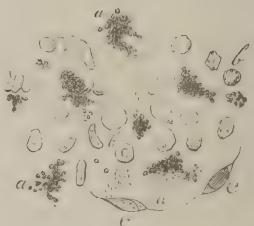


Fig. 5.

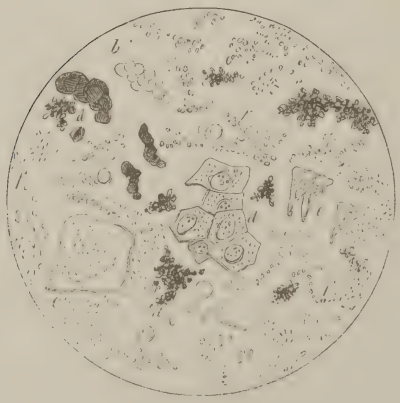
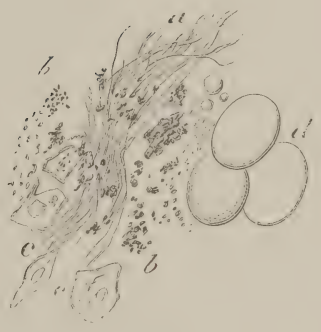


PLATE II.

Fig. 1.

Fig. 2.



PRIZE ESSAY.

ON THE PATHOLOGY OF JAUNDICE.

During the past year, I have had the opportunity to examine a number of cases of jaundice. Some of the cases came under observation in my duties as curator and microscopist to the ——— hospital; the others I saw through the kindness of the physicians in attendance, and for whom I made the *post-mortem* and microscopical examination. Drs. A. N. Bell, J. T. Conkling, De Witt C. Enos, Robert Ormiston, Jr., J. M. Minor, D. S. Landon, Jas. Crane, H. S. Smith, and others, were present at several of these examinations, and are assured of their accuracy.

The examinations were made with especial reference to the cause of the yellow coloration of the skin and tissues.

As the facts and conclusions gathered from them differ from the generally accepted views, and appear to throw some light upon this difficult subject, I beg leave to present them for the consideration of the profession.

The cases examined are eleven in number; their histories, *post-mortem*, and microscopical examinations are as follows:—

Case I. *A Case of Black Vomit.*—Presented to the King's County Medical Society, by J. T. Conkling, M. D.

"April 21st. A seaman, æt. 19, left New Brunswick in October last for Kingston, Jamaica. While there he had, he said, bilious fever, and was confined to the hospital several weeks. He was on the island two weeks longer in a boarding-house, where his food consisted only of bread and salt fish. On the 1st of February he left in the barque John Bolton for Philadelphia, and though very feeble, worked his passage during a voyage of eighteen days. From Philadelphia he came directly to this city, arriving here on

Thursday morning, Feb. 19th. He partook of a breakfast of beefsteak and coffee, and at dinner, of corned beef and cabbage. In the evening he vomited, and had a restless night. His sister said she gave him on Friday, salts and cream of tartar, which produced vomiting and purging. Friday evening, at seven o'clock, he commenced vomiting large quantities of dark fluid matter. I first saw him on Saturday, at three o'clock. He was suffering from severe pain in the bowels; had intense thirst; would drink a few swallows of water, and immediately vomit a pint or more of black fluid, which excoriated his throat and had a very acid odor; his pulse was natural; eye clear; and skin normal in color and temperature. His bladder was empty, and he told me he had passed urine the evening before. The vomiting continued during the day and following night. His mind remained clear. There was a constant restlessness and shifting of position in search of ease. There was no evacuation of urine or feces after I saw him. His strength failed gradually, and he died at nine o'clock on Sunday morning, thirty-eight hours after the first occurrence of the dark vomited matter."

The autopsy was made by myself seven hours after death, in the presence of Drs. Conkling, Enos, and Bell. Body well formed, but emaciated; not yet cold; rigor mortis not well pronounced; surface tinged, livid; frothy mucus filling the nostrils. The pectoral and abdominal muscles were of a very dark color, almost purple.

Thorax.—Old adhesions at the posterior part of the left lung. Intense sanguineous engorgement of both lungs. Incisions made in any part of the lungs gave rise to an abundant flow of very dark-colored blood. The pericardium contained about an ounce of yellow serum. The heart was full sized, firm, veins upon the surface distended with blood; cut surface presented a darker hue than usual; intensely black clots in right ventricle and auricle; a small light-colored clot in left ventricle and a small black clot in left auricle; slight thickening of the semilunar valves of the aorta; otherwise valves perfect.

Abdomen.—Liver very dark, between a purple and chocolate color; appeared normal in size; borders sharp and well defined; a few patches upon the anterior surface of a lighter color than the rest of the organ, having a slight yellow tint. The organ was firm; its cut surface smooth, and contrary to opinion based upon its dark color, it was dry, little or no blood making its appearance in the

course of the knife. Its ducts were stained with yellow bile. The gall-bladder contained dark bile.

Stomach very large, extending down to the umbilicus and into right lumbar region; it contained two quarts of black fluid similar to that vomited by the patient, of very acid odor; the mucous membrane near the pylorus was much congested and bared of mucus; the other portions were covered with thick mucus mixed with dirty black material like the vomita.

Duodenum.—Filled with a similar black fluid; mucous membrane dark-colored, not congested; intestines at some points much congested; they contained but little fecal matter, of a yellow color, with only slight odor. Peyer's patches were healthy.

The *spleen* was twice its normal size, of a dirty black color, and becoming diffluent.

The *kidneys* were congested, nearly normal in size, firm; their capsules were firmly adherent; cut surface smooth, dark-colored, and soon covered by a layer of dark blood. The *supra-renal capsules* were of a dark color, their cortical and medullary substances not well defined. The head of the *pancreas* was a little enlarged, otherwise normal. The *bladder* contained about four ounces of reddish urine. The *bloodvessels* contained but little blood, and that was of a dark color.

Microscopical and Chemical Examinations.—The black vomit was very acid. Seen through the microscope with a quarter inch objective, it was composed of striated muscular fibres (ingesta), altered starch corpuscles, and numerous sarcinæ ventriculi, the whole field being covered with black amorphous granules, varying in size, some of them aggregated together; many of them, on changing the illumination and focus, transmitted a deep red light. They were not acted upon when treated with acetic acid, but were dissolved by ammonia and liquor potassæ, giving a deep red color. They were considered to be granules of hæmatoidine.

Liver.—Its cells were normal, with the usual amount of fat. A few cells were found in process of fatty degeneration; these were rare. *Amorphous granules,* similar to those found in the black vomit, were everywhere present, but less abundant than in the vomita. In some places the granules were very fine, and gave to the field a yellowish tint. A few crystals were found, probably the so-called blood crystals.

Heart.—Muscular fibres perfect; granules of hæmatoidine present, but not abundant.

Kidneys.—A few of the tubes were partially denuded of their epithelium; abundant granules of hæmatoidine; otherwise healthy.

Spleen considerably disintegrated; abundant granules of hæmatoidine; blood-corpuscles much enlarged and broken down, being swollen, oblong, irregular, and granular.

Pancreas healthy; contained a very few granules of hæmatoidine.

Supra-renal capsules apparently healthy; granules of hæmatoidine more abundant than in pancreas. Urine albuminous; it contained scales of epithelium from bladder, ureters, and kidney; urate of ammonia, blood-corpuscles, and granules of hæmatoidine.

This case was not strictly one of jaundice, for there was no yellow color of the skin or conjunctivæ. There was, however, a dark purplish discoloration of the skin and all the tissues noticed after death. This dark discoloration was due to the abundant granules of hæmatoidine, as was shown by the microscopical examination; the shade of color depending in a measure upon the size, depth of color, and aggregation of the granules—the very fine ones giving a yellowish tint to the field of the microscope.

It is very probable that, had the patient lived longer, the yellow color would have appeared in the same manner as we find changes of color taking place around ecchymotic spots and old extravasations; the tissues assuming a variety of colors during the decomposition of the hæmatine, and the oxidation of the resulting hæmatoidine—the shade varying from perfect blackness to a light yellow.

In the discussion of this case before the King's County Medical Society, Dr. Enos regarded it as a case of bilious remittent fever.

Dr. Bell believed it to be a case of yellow fever, and attributed the absence of yellowness of the skin to the rapidly fatal character of the case, stating that in those cases which are fatal during the period of excitement, yellowness of the skin is commonly absent, or does not occur till after death.

Case II. John Wilson, æt. 25 years; sailor on ship Swaomie from Aspinwall; admitted July 14th, 1863, to —— Hospital, service of Dr. D. S. Landon.

Symptoms.—General pyrexia; vomiting (the vomited matter he said was of a blue color); pain in the back, head, abdomen, and limbs; mental and bodily prostration; great irritability of stomach; black vomit; tongue deep red at the tip and edges, loaded and dark in the centre; pulse slow; alvine dejection of a tarry appearance.

There was also a suppurating wound over the left orbit received while on shipboard some two weeks previous.

July 15th. Patient failing rapidly; seen in consultation by Drs. Landon, Bell, Crane, and Smith, who pronounced it to be a well-marked case of yellow fever.

July 16th. Died.

Autopsy three hours after death.—Body well formed, emaciated; rigor mortis well marked; surface yellow; some patches resembling ecchymosis; conjunctivæ yellow; blood upon the lips; thighs and nates stained with dark blood passed by stool; wound about one inch in extent upon the forehead, discharging pus; bone beneath bared of periosteum; left eye swollen and ecchymosed.

Brain.—On removing the calvaria the surface of the dura mater was bathed with pus for a space of about two inches, at a point corresponding with the external wound; pus between the dura mater and arachnoid, and upon the surface of the brain in about the same extent of surface, but in small quantity. On cutting the optic nerve of the left side, pus escaped from the orbit. Small amount of serum in lateral ventricles; the meningeal inflammation did not extend into the substance of the brain. The blood, which escaped on cutting the sinuses, coagulated immediately.

Thorax.—Pectoral muscles very dark-colored; a few ounces of bloody serum in the pleural cavity; lungs free from adhesions, contained scattering tuberculous masses undergoing softening.

Heart.—The pericardium contained from three to four ounces of clear serum; weight of heart 13 oz.; veins upon the surface distended with blood. Upon opening the large vessels of the thorax the blood came from them fluid, but coagulated immediately on exposure to the air; coagulum in the right side of the heart very firm and yellow, filling the cavity; small coagulum in the left side; valves normal.

Abdomen.—Muscles very dark-colored.

Liver.—Fawn-colored; weight 4 lbs. 7 oz.; mottled; in some places lighter colored than in others, cut surface smooth and dry; bile-ducts contained small amount of yellow bile; gall-bladder contained black bile.

Spleen.—7½ oz.; softened.

Kidneys.—7 oz.; light-colored; cortical substance increased; in one of them was a small cyst containing black fluid; supra-renal capsules large, very firm and dark-colored.

Bladder contained a few drachms of turbid urine; mucous membrane ecchymosed.

Pancreas enlarged.

Stomach contained about twelve oz. of black, sanguineous liquid; its mucous membrane was congested and ecchymosed. The whole intestinal canal was filled with a black, sanguineous liquid. The small intestine contained a living tapeworm six or seven feet long, the lower portion being broken off. The mucous membrane of the intestines was ecchymosed in some places. There was entire absence of fecal matter.

Microscopical Examination.—The contents of the stomach and intestines were acid, and contained altered blood-corpuscles, and abundant granules of hæmatoidine.

Liver.—Its cells were large, and some of them fatty, but the greater portion presented the appearance of advanced waxy degeneration; there was abundance of hæmatoidine and a few blood-crystals.

Heart.—Granules of hæmatoidine; muscular fibres undergoing molecular degeneration.

Kidneys.—Fatty; granules of hæmatoidine.

Pancreas and supra-renal capsules contained hæmatoidine.

Spleen.—Softened; abundance of hæmatoidine.

The *skin* and *conjunctiva* contained abundant granules of hæmatoidine, and seemed to derive their yellow color from the presence of this substance.

Blood.—Some of the corpuscles were found altered and broken down.

Case III. Mary Smith, æt. 28 years; stewardess on board steamer Continental from New Orleans; admitted to —— Hospital, Oct. 2d, evening. Service of Dr. A. N. Bell.

Two days before, the patient had washed her husband's clothes, which had come from New Orleans in a tightly packed trunk one week previous. Soon after washing the clothes she had a chill.

Symptoms on Admission.—Pulse 130; skin hot, dry, and yellow; tongue furred and red at the tip and edges; conjunctivæ yellow; pain in the left side and back; cough; jactitation; diarrhœa; feces of a light yellow color. Pneumonia of the lower lobe of the left lung.

Oct. 3d. Urine contains trace of albumen and hæmatoidine.

4th. Urine gave the reaction for bile (?) with nitric acid.

5th. Yellowness of the skin and conjunctivæ increased; tongue

covered with a thick black crust; red at the edges; stools and urine passed involuntarily.

6*th.* Efforts at vomiting; less restless.

7*th.* Died at 8½ A. M.

Autopsy 7¾ *hours after death.*—Body well formed, emaciated; surface yellow; conjunctivæ yellow; patches of ecchymosis on different parts of the body.

Brain.—Normal.

Thorax.—Pneumonia of the middle and lower lobe of the left lung; hepatization.

Heart.—11 oz., flabby; coagula in both sides, that on the right side very black. The blood in the large veins of the thorax coagulated and black.

Abdomen.—Liver dark-colored, with yellow patches here and there upon the surface; cut surface dry; bile-ducts contained yellow bile; weight of liver 3 lbs. 7 oz.

Kidneys 7½ oz., flabby.

Spleen 10 oz., soft and dark-colored.

The *stomach* and *intestines* contained a small quantity of greenish fluid. Intestines congested in some places; the cæcum contained yellow fecal matter.

Microscopical Examination.—Liver fatty; abundant granules of hæmatoidine.

Kidneys.—Fatty; hæmatoidine.

Spleen.—Hæmatoidine and altered blood-corpuscles.

Heart contained hæmatoidine, and was undergoing molecular degeneration.

The contents of the *stomach* and *intestines* contained hæmatoidine, and in this respect resembled black vomit.

The *skin* and *conjunctivæ* contained abundant granules of hæmatoidine of lighter shades of color. The color of the skin and conjunctivæ seemed to be due to the presence of this substance. The muscles, connective tissue, &c. all contained granules of hæmatoidine.

Case IV. Jas. Perry, æt. 43 years. On the 17th of Oct., 1863, was kicked on the lower jaw by a horse, fracturing the jaw near the symphysis between two incisor teeth.

18*th.* Admitted to —— Hospital. Mouth much swollen; breath offensive, smells of alcohol; patient a little restless and wild-looking.

Nov. 1*st.* Got out of bed last night and chased the nurse about the room with a bottle with intent to kill him.

3*d.* Complains of pain in the chest; breathing laborious, with quick pulse and high fever. Find dulness and crepitation in the lower part of the left lung; moans and talks; feels well in the evening.

5*th.* G out of bed last night and sat on the floor. 6 o'clock A. M. hemorrhage from the mouth. Mouth drawn to the left side. Is comatose. 1 o'clock P. M. died.

Autopsy twelve hours after death.—Body well formed; surface yellow, with occasional bluish spots resembling ecchymosis; conjunctivæ yellow. The inferior maxillary bone was fractured at one-half inch from the symphysis.

Brain.—Normal.

Thorax.—Sero-purulent effusion filling the left pleural cavity; pneumonia of the lower lobe of the left lung; extensive melanotic deposit in the same and softened tubercle. Small amount of tubercular deposit in the right lung; pleura adherent.

Heart.—Weighed 13 oz., waxy appearance.

Liver.—5 lbs. 7½ oz., fatty; cut surface granular; light-colored.

Kidneys.—7½ and 8 oz., dark-colored capsules adherent.

Spleen.—Very dark-colored; firm; on exposure to the air the dark color disappeared rapidly. The muscles of the abdomen were very dark-colored and became lighter on exposure to the air.

Microscopical Examination.—Heart waxy; liver fatty. The skin and conjunctivæ contained abundance of hæmatoidine. The muscles and other tissues contained hæmatoidine to some extent.

Case V. Josephine Sleight, æt. 42; married; admitted to —— Hospital Nov. 1st, 1863. *Symptoms.*—Pain in the right hypochondriac region, and also below the umbilicus; constipation of long standing; skin and conjunctivæ yellow. Five weeks ago a tumor appeared in the abdomen in the median line, and extending in the region of the liver. It was movable, and appeared to be attached to the left lobe of the liver. The liver was enlarged. Ordered turpentine and castor oil, which brought away lumps of hardened feces.

11*th.* Bowels moved well this morning, scybalous; towards evening has severe pain in the abdomen and over the liver. Ordered ext. colocynth. co., ipecac., and ext. nucis vomica, to keep the bowels open; anodyne at night; and fomentations to the bowels

from time to time. Exacerbations of pain at night, the patient sometimes rolling upon the floor to get relief.

22*d*. Patient's skin and conjunctivæ of a yellowish-brown color. The urine gave the reaction for bile (?) with nitric acid test; examined with Pettenkofer's test, the result was negative.

24*th*. Bowels moved, feces clay-colored.

25*th*. Died.

Autopsy twenty-four hours after death.—Body much emaciated; surface yellow; conjunctivæ yellow.

Brain.—Scalp and meninges very yellow; a small quantity of serum beneath the arachnoid and in the lateral ventricles; otherwise brain normal.

Thorax.—Lungs normal. *Heart,* small and flabby. In the region of the thymus gland, the trachea was surrounded by a firm nodulated tumor about three inches in diameter, of a cancerous appearance.

Abdomen.—Liver large, firm, and occupied by a cancerous deposit, most extensive in its anterior and superior surface; gall-bladder distended to four or five times its normal size, and lying parallel with the ascending colon; it contained twenty-three gall-stones; there was a white patch upon its surface (external) about one inch in extent, the result of previous inflammatory action. The mesentery was occupied by a nodulated cancerous tumor firmly adherent to the vertebral column, surrounding the aorta, and compressing the duct of the gall-bladder. The pancreas was involved in the disease to such an extent as to be blended with the tumor. The cancerous mass weighed 4 lbs. 12 oz. On cutting the liver a deposit of similar nature was found in its interior; in some places it was of a dark brown or red color. Kidneys and spleen normal. Intestines not involved.

Microscopical Examination.—The tumors were found to be of a cancerous nature, exhibiting the cells usual to the encephaloid cancer. The reddish patches in the liver contained a large number of blood crystals and granules of hæmatoidine. The skin contained abundance of hæmatoidine.

Case VI. Coroner's inquest. Female, about 25 years of age. Autopsy Dec. 13th, 1863, one month after death. The body had been disinterred on account of suspicion of poisoning. Body well formed, and in a good state of preservation. Abdomen enlarged. Surface yellow; conjunctivæ yellow; the shade of color on the face

and thighs was of a beautiful orange tint. There was a dark discoloration about the neck, pubes, and elbows, the result of decomposition. The pleural cavity contained a large amount of bloody serum; lungs normal; heart small, flabby, and empty. Abdomen contained a large quantity of thick, partly coagulated blood. Liver of a yellowish color, normal in size. Gall-bladder contained six or seven gall-stones of triangular shape and black color. Gall-ducts unobstructed. Kidneys normal. Spleen soft. Intestines very dark-colored from decomposition. Stomach distended with gas; uterus enlarged; posterior to it in the cul-de-sac was a mass of coagulated blood attached to the left broad ligament, and on tracing it up it was found to be a part of a coagulum formed in the Fallopian tube and broad ligament; a similar condition of less extent existed upon the opposite side. On the right side the swelling of the Fallopian tube looked as if there might have been an extra-uterine pregnancy. It was supposed that the woman came to her death by the escape of blood into the peritoneal cavity from the rupture of these tumors.

Microscopical Examination.—The skin, conjunctivæ, and some of the tissues contained hæmatoidine; in the skin it was very abundant.

Case VII. Johanna Thorn, æt. 40. Admitted to —— Hospital Dec. 11, 1863. About eight months ago her menses stopped; before that time she had been healthy. Her habits were very intemperate. Has had a cough for three months. Two months ago her abdomen began to swell, commencing at the lower part of the abdomen in the median line. When admitted the skin and conjunctivæ were very yellow and continue to be so. Bronchial respiration at the apices of both lungs; respiration embarrassed. Diagnosis, çirrhosis of liver.

12*th.* Bowels moved freely last night and this morning. Ordered squill, digitalis, and blue mass.

14*th.* Bowels quiet; expectorates considerable; sputa tinged with blood; does not sleep well; respirations embarrassed.

Jan 1*st*, 1864. Abdomen softer and less distended. Makes from ℥xvi—xx of urine in twenty-four hours; has from six to eleven stools in twenty-four hours. Sleeps better than she did. Urine dark-colored, and gives the reaction for the coloring matter of the bile with nitric acid, but failed to react with Pettenkofer's test. Examined microscopically the urine contained abundance of urates, and some scales of epithelium stained yellow.

20*th*. The patient is now more comfortable; the skin is less yellow, and the urine lighter colored. This patient is still under observation.

Case VIII. (Private patient of Dr. De Witt C. Enos.)—Mr. B——, æt. 48, merchant; health generally good; he has been affected with deafness for years.

Dec. 25, 1863. He began to complain of not feeling well, was weak, and had undefined, but unpleasant feelings in his head. Does not sleep well; has itching of the skin. Has had eczema on the right arm for years. Dr. Enos saw him.

Jan. 1, 1864. He was very restless at night; the itching was severe; no appetite; tongue a little furred, white; bowels torpid; urine abundant, high-colored, and acid. Treated with nitric acid gave reaction for the coloring matter of the bile. Pettenkofer's test failed to react.

He had pain in various parts of the body. Ordered Rochelle salts till the urine was less acid. In a few days the skin became yellowish, and the conjunctivæ quite icterode. He was purged freely with pil. hydrarg. and sulph. magnes., after which he took an infusion of juniper berries with gin. He soon began to feel better, the jaundiced hue to pass away, and in three weeks Dr. Enos ceased to visit him. His eye, however, was still a little icterode.

Case IX. (Private patient of Dr. Enos.)—Mr. B——, æt. 23. Has felt unwell for some weeks. Has had some dizziness and unpleasant sensation in the head. Bowels torpid; feces dark-colored; urine abundant, very high-colored and acid, and with nitric acid test gave the reaction for the coloring matters of the bile. With Pettenkofer's test the reaction was doubtful. Skin and conjunctivæ very yellow. A microscopical examination of the urine showed a large number of casts from the tubes of the kidney; they were stained yellow. This patient was treated like the last case. He was confined to his bed about two weeks. He convalesced rapidly, the yellow hue passing from the skin first, and lingering longer in the conjunctivæ. As the jaundiced hue passed away from the skin, and the dark color disappeared from the urine, the casts of the tubuli uriniferi disappeared also.

Case X. (Private patient of Dr. Enos.)—Mr. B——, æt. 33; health generally good; but for the last two or three weeks has

not felt as well as usual. On the 28th of January he had a chill, pain in the head and side. Dr. Enos was called the day after the attack; the patient had passed a sleepless night; pulse 112; respirations 24; breathing interrupted; pain in the head; tongue coated; bad taste in the mouth; cough; expectoration tinged with blood at first, next day prune-juice colored, and subsequently greenish. Crepitation at the lower part of the right lung, at first resonant, but subsequently dull on percussion as far up as the ninth rib; tenderness in the region of the liver; nausea and vomiting; hepatic dulness four and a-half inches; bowels regular; urine high-colored and scanty.

On the 29th, second day after the attack, the patient became icterode; this increased until to-day (Feb. 4th). It is now improving. The conjunctivæ remain the same. The patient is now convalescing. The urine continues of a dark color; treated with nitric acid, gave the reaction for the coloring matter of the bile. Treatment same as in the last two cases.

Case XI. (Patient of Drs. Clark and Enos.)—*Albuminuria, puerperal convulsions, jaundice,* and *death.*

A lady, aged thirty years, eight months pregnant and in labor, was attacked with convulsions; chloroform was administered, and the child delivered; convulsions passed off; the patient was then conscious for seventy-eight hours, and then another convulsion occurred; pain in the head; pulse 130—140; patient became comatose and died. The urine contained albumen before delivery; after delivery there was only a trace of albumen. The patient was not seen for twelve hours before death; she became jaundiced during that time, but the exact time could not be determined.

The *post-mortem* examination was made by Dr. Enos. The surface was yellow; conjunctivæ yellow; brain not examined; lungs normal; heart fatty; liver fawn-colored, large and fatty; kidneys large and fatty. The gall-bladder contained a moderate quantity of bile.

Microscopical Examination (by myself).—The liver was exceedingly fatty; its cells were filled with fat globules, and many of them entirely destroyed. The heart and kidneys were fatty. The skin contained abundance of hæmatoidine.

In connection with these cases of jaundice I have made a number of examinations of extensive discoloration of the integument and other tissues from bruises and old extravasations. These,

examined side by side with specimens of jaundiced tissues, presented a precisely similar appearance under the microscope, so much so that a portion of jaundiced tissue might readily be mistaken for that of an ecchymosis in its stage of yellow discoloration.

Jaundice or Icterus is a comprehensive term, which has been applied to a group of diseases the prominent symptom of which is yellowness of the skin, of the conjunctivæ, and of some of the secretions, especially the urine. It has been attributed to various causes, but chiefly to some obstruction to the flow of bile into the intestines. It has been supposed that the functional activity of the liver is not interrupted, and that the accumulating bile is absorbed into the circulation, being afterwards partly deposited in the skin and partly excreted by the kidneys.

Frerichs has proposed to account for the production of jaundice in those cases where no mechanical obstruction of the hepatic ducts could be supposed to exist by presuming that the consumption of the biliary acids which are reabsorbed into the circulation, either from the intestines or from the liver itself, might be checked at some stage of its progress. Instead of being ultimately converted into urinary coloring matters, these acids would only reach the transitional form of bile pigment, the gradual accumulation of which would tinge both the tissues and the secretions. The chief support of this view was derived from the fact that coloring matters having the properties of bile pigment were produced artificially, and the biliary acids were injected into the blood of dogs, when bile-coloring matters, but no bile acids, appeared in the urine. A paper by Dr. Kühne, contesting the validity of Frerichs' experiments, was published in *Virchow's Archiv.*, vol. xiv., Sept. 1858, an abstract of which, by Geo. Scott, appeared in *Beale's Archiv.*, vol. i.; whence I have extracted the references here made to the experiments of Dr. Kühne.

Kühne concludes that in icterus from closed ducts the urine always contains biliary acids, whilst normal urine never affords any evidence of their presence.

Dr. Folwarczny has published the results of a series of experiments contradictory to this conclusion of Kühne's. Dr. Neukomm has made a more extended series of experiments. He examined icteric urine, obtained from a patient suffering from closure of the ductus communis choledochus, which on being treated with nitric acid yielded the reaction of bile pigment. Pettenkofer's test gave

no evidence of the presence of a biliary acid. Neukomm also injected the biliary acids into the veins of dogs, and in the majority of cases biliary coloring matter was found in the urine, but no biliary acids. In two instances, however, the biliary acids were detected in small quantity. Neukomm believes these facts seem to indicate a conversion of the biliary acids into coloring matter in the course of the circulation. But he maintains that the exceptional cases should receive due consideration.

Chemists and physiologists are at variance in regard to the question of the presence or absence of bile acids in the urine.

The results of examinations for the detection of bile substances in the blood and urine are very contradictory. Lehmann, Sherer, and Gorup-Besanez consider the existence of bile-acids in the urine as an extremely rare occurrence, and that it is just the deeply colored urine of icteric patients which contains no bile-acids.

Kühne made a series of experiments proving that soda salts of glycocholic, cholalic, and choloidic acid, after being injected into the veins, again leave the bodies of the animals unchanged through the kidneys.

Kühne has found that cholalic acid, choloidic acid, and dyslysin existed normally in the dogs' feces, and in such large quantity that he concludes that almost none of the bile-acids are reabsorbed from the intestines, but that they pass off for the most part in the excrements.

Liebig, and Bidder and Schmidt, on the contrary, affirm that, for the most part, the elements of the bile re-enter the blood after passing into the intestine, the coloring matter, however, being finally excreted with the feces.

Frerichs and Stœdeler affirm that the bile-coloring matter and bile-acids never appear together in the urine; that, on the other hand, sometimes traces of the biliary acids can be detected in urine having no jaundiced hue; from this they conclude that there is some connection in the origin of these two substances.

Frerichs injected into the veins of a dog ox-bile freed from mucus and coloring matter. The animal's urine afterwards secreted was very deeply colored, and chemical analysis showed that in reality bile-coloring matter was present in the urine as a sediment. Substances giving Pettenkofer's reaction were not detected. Hence Frerichs concludes that so soon as the bile-acids arrived in the blood they were changed into bile coloring matter.

Kühne, however, does not agree with this theory of Frerichs.

He states that in icterus caused by closure of the ductus communis choledochus, the urine contains always bile-coloring matter.

Kühne examined five litres of normal urine for bile-acids, after Hoppe's method, but did not detect any; he therefore concludes that the presence of bile-acids is the peculiarity of only icteric urine. Thus Kühne's results contradict completely those of Frerichs, who asserts that after the injection into the blood of glycocholate of soda, or any other pure bile-acid salt, bile-coloring matter appears in the urine, while unchanged bile-acids are never to be found; and that icteric urine is that least likely to contain bile-acids. In the experiments of Kühne, after the injection of bile-substances into the blood, albumen appeared in the urine, and there was sometimes hæmaturia. This was observed, also, in the experiments of Frerichs; hæmaturia occurred seventeen times out of twenty-nine injections, a fact which is worthy of remark.

From the experiments of Kühne it appears that there is an invariable appearance of bile-coloring matter in the urine after the injection of colorless bile-acids into the blood. The occurrence of hæmaturia has been explained by the fact discovered by Hühnefeld, Plattner, and Simon, viz: that the bile-acids and their salts have the peculiar property of dissolving the blood-corpuscles. The blood-corpuscles of mammalia and birds are easily dissolved by bile and bile-acids. Kühne, therefore, attributes the bile-coloring matter in the urine, after the injection of colorless bile-acids into the blood, to the hæmatine set free by the solution of a certain number of the blood-corpuscles.

Kühne states that, if a bile-acid salt be injected into a vein, soon afterwards free blood-coloring matter and bile-coloring matter appear in the blood.

Kühne considers that the fact of the solution of the blood-corpuscles in the living body by bile-acid salts, and the formation of bile-coloring matter out of blood-coloring matter, gives support to the theory that a not inconsiderable amount of blood-corpuscles is destroyed in the liver, and that the coloring matter found in the bile represents the changed product of the hæmatine which had been contained in this portion of the blood-corpuscles dissolved.

Kühne tied the ductus communis choledochus of a dog so as to prevent any excretion of bile, and found that its blood, twenty-four hours afterwards, contained bile-acids. It was very remarkable that, during the whole time of the ductus communis choledochus being impervious, the dog had not an icteric appearance. The

conjunctivæ remained uncolored as well as the rest of the body, and only the urine showed, by the presence of bile-coloring matter and bile-acids, the true icteric condition.

Kühne found that in animals with biliary fistula, where there was some obstruction to the excretion of bile by the fistula, bile-coloring matter may appear in the urine without bile-acids. This seems to be opposed to his previous statement that the bile-coloring matter found in the urine after the injection of colorless bile-acids into the blood is to be attributed to the hæmatine set free by the solution of a number of the blood-corpuscles. Kühne having previously shown that the bile-acids always pass from the blood unchanged through the kidneys, it would appear that in this last case the presence of bile-coloring matter in the urine was not dependent upon the action of the bile-acids upon the blood-corpuscles; for, in that case, the bile-acids ought to have been detected in the urine, inasmuch as they pass unchanged from the blood to the urine.

Orfila found biliary resin in the blood of three persons suffering from icterus. Lessaigne and Thénard, on the contrary, declare that they could never detect any constituent of the bile in such cases.

Simon's analysis of the blood in icterus showed a large increase of the solid constituents and of hæmatine.

Sherer often discovered decided traces of bile-pigment in the urine of healthy persons, especially during the hot months, and believes that, in disturbances of the function of the liver, this pigment very often presents itself in the urine.

Lehmann says that, in perfect suspension of the biliary secretion, as, for instance, in true granular liver when the urine throws down an intense scarlet sediment, no trace of bile-pigment or cholic acid can be detected. He also states, in relation to the formation of bile in the liver, that the most careful examinations have hitherto failed to detect any of the most essential constituents of the bile in the portal vein. The error of supposing that biliary substances have been demonstrated in the blood of the portal vein by means of sugar and sulphuric acid, he thinks, arises from the similar reaction which Pettenkofer's test gives with olein and oleic acid.

From this enumeration of the views of a number of authors it is obvious that there is nothing settled in regard to these obscure points. The experiments and observations of the most distinguished chemists and physiologists have led to very contradictory results.

The question of the cause of jaundice has not yet been satisfac-

torily settled by pathologists. Further observation and experiment are necessary to solve many of the difficulties surrounding it. Authors generally agree in considering jaundice as a symptom of some affection of the liver or of the blood rather than a separate disease. Dr. Budd defines jaundice to be a yellow color of the conjunctivæ and the skin, arising from the presence of the coloring matter of the bile in the blood and tissues.

According to him, it may be produced in two ways: 1st. By some mechanical impediment to the flow of bile into the duodenum, and the consequent absorption of the retained bile; and 2d. By defective action on the part of the secreting substance of the liver, in consequence of which the secretion or elimination of bile is arrested.

In regard to the first condition I believe there is no dispute, and it is conceded that the majority of cases of jaundice are due to the reabsorption of secreted bile.

Frerichs has objected to the second hypothesis on the ground that, if it be true, the biliary acids and bile-pigment ought to accumulate in the blood in cases of granular liver, just as urea accumulates in granular degeneration of the kidneys.

If this objection had been made to the first proposition instead of the second, it would hold good, for the bile, if reabsorbed, ought certainly to accumulate in the blood and be detected there. Yet all attempts to detect traces of the essential elements of the bile in the blood, and in that of the portal vein in particular, have failed; neither the coloring matter nor the acids of the bile having been found. Moleschott extirpated the livers of some frogs; the animals lived for several weeks, but no trace of the elements of the bile could be detected in the blood, lymph, urine, or muscular tissue. Kunde met with similar results. Lessaigne and Thénard affirm that, in their examination of the blood of jaundiced persons, they could never detect any constituent of the bile. We have no sufficient proof of the reabsorption of the coloring matter of the bile into the blood, and this theory cannot be accepted. I would, therefore, apply to the first hypothesis the argument which Frerichs uses against the second.

This reasoning cannot, however, be maintained against the second hypothesis, for, as we have just seen, the coloring matter of the bile does not exist in the blood. It must therefore be formed in the liver, out of the hæmatine of the decomposing blood-corpuscles, and under these circumstances we would expect to find accumula-

tion of hæmatine and débris of blood-corpuscles, and not of bile. This, I think, is what we really do find, and so far there is a certain analogy between jaundice and uræmia. In each there is retention of an abnormal quantity of substances found in healthy blood, and which are undergoing retrograde metamorphosis. In retention of urea, we only have uræmic poisoning when the urea becomes converted into carbonate of ammonia; and in case of the retention of hæmatine, jaundice occurs only after the hæmatine passes from the vessels and becomes changed into hæmatoidine (cholepyrrhine).

In several of the cases herein reported, it is stated that the urine was dark-colored and gave the reaction of bile with Pettenkofer's test. This coincides with some cases reported by others. But it must be remembered that the reaction of Pettenkofer's test is produced by the presence of the biliary substances proper, and is not at all dependent on the coloring matter of the bile, since it is produced equally with decolorized bile.

Now, as this is the test relied upon in most of the examinations which have been made for the detection of the presence of bile in cases of jaundice, it is apparent that it gives no evidence of the presence of the coloring matter of the bile, which is of course the only constituent of the bile which could impart a color to the urine or tissues.

The coloring matter of the bile has sometimes been said to be detected in the urine by the aid of the nitric acid test.

We have seen from a previous statement that all attempts to detect the coloring matter of the bile in the blood have failed. Liebig has shown that for the most part the elements of the bile re-enter the blood after passing into the intestine, the coloring matter, however, being finally excreted with the feces.

I think it will be conceded that, in order for any substance to be excreted by the kidneys, it must first exist in the blood, unless indeed it be manufactured directly by the kidneys or undergoes a change in its sojourn in these organs. So that when we find a substance in the urine, we conclude that either that substance or the elements from which it was formed pre-existed in the blood. If we apply this reasoning to the case before us, we find that the coloring matter of the bile does not exist in the blood, but the element out of which it is formed, hæmatine, does exist there, and we are forced to conclude that the substance found in the urine must have been derived from the hæmatine of the blood.

Again, nitric acid is the test chiefly relied upon for the detection

of the coloring matter of the bile. It was used in the cases now presented, and in most of them gave the reaction generally supposed to indicate the presence of that constituent of the bile. But there is another substance which was discovered to be present in these cases, and in some instances was found in the urine examined microscopically—a substance to which Virchow has given the name of hæmatoidine. With respect to the peculiarities of hæmatoidine, he says: "It has, in a theoretical point of view, another special claim to our interest, from its presenting to us a series of properties which render it conspicuous as the only substance in the body at least that we are as yet acquainted with, which is allied to the coloring matter of the bile (cholepyrrhine). By the direct action of mineral acids, or after previous treatment and preparation by means of alkalies, the same or precisely similar color-tests are obtained which are yielded by the coloring matter of the bile when treated with mineral acids, and it seems also from other facts that we have here a body before us which is very intimately connected with the coloring matter of the bile. This circumstance derives its especial interest from its being supposed, for other reasons also, that the colored constituents of the bile are products of the decomposition of the red coloring matter of the blood. In the interior of extravasations there really does arise a yellowish-red substance, which may be designated as a newly-formed kind of biliary coloring matter."

It is difficult then to determine in a given specimen whether we have present cholepyrrhine or hæmatoidine. The same kind of difficulty arises which occurs in deciding between the white blood-corpuscle and the pus-corpuscle. This is only to be decided by determining the source from whence the specimen is obtained, because we know of no characters by which the globules can be distinguished individually. This, then, is the method which we must use in order to decide between the substances in question.

We have already seen that where Pettenkofer's test has been used it could give no evidence of the presence of its coloring matter. In the cases now reported this test failed in a number of instances. The nitric acid test, however, always gave the green color, which we now see would indicate one of two things—either the presence of cholepyrrhine or of hæmatoidine; but inasmuch as cholepyrrhine has never been detected in the blood, we should not expect to find it in the urine, and whereas hæmatoidine was found in the skin and tissues in these cases, and being a substance readily obtained

from the hæmatine of the blood, we are forced to conclude that the substance found by the aid of the nitric acid test in these cases was hæmatoidine.

These two substances, cholepyrrhine and hæmatoidine, are probably identical. The distinction which I would here make is between the one as a substance formed in the liver, a constituent of the bile (cholepyrrhine), and the other a substance derived directly from the hæmatine of the red blood-corpuscles, and formed in any of the tissues of the body without the previous action of the liver (hæmatoidine).

If the coloring matter of the bile was really absorbed from the liver or gall-bladder, we ought to find the color of the blood affected first of all, and subsequently all the tissues supplied by it; but this is not the case, for there is a set of tissues which, although well supplied with blood, but rarely partake of the coloration of the skin and urine, viz., the tongue and mucous membranes. Watson states that the secretions furnished by the mucous membranes are in general signally exempt from this change of color. The tongue and inside of the lips present commonly a remarkable contrast with the face of the jaundiced person. Dr. Budd observes that the mucous membrane of the stomach and intestines is never stained with bile except when that secretion has continued to enter the duodenum.

In the examination of the skin and tissues microscopically (see plates) a large amount of hæmatoidine was found to be present in the form of crystals and granules, some of them exceedingly minute, and others of considerable size; crystals of large size were most frequently found in the liver. Their color varied from a light yellow to almost black, the shade depending in a measure upon the size, depth of color, and aggregation of the granules. This substance was found in every case, and was most abundant in the parts most deeply colored.

From the foregoing facts it would appear that the yellow color of the skin and tissues, in these cases, was due to the presence of hæmatoidine.

It seems probable that one of the functions of the liver is to take charge of the worn-out blood-corpuscles, the coloring matter of the bile being derived from their hæmatine. The hæmatine, giving up one equivalent of iron and taking one equivalent of water, becomes hæmatoidine (Robin), cholepyrrhine. This change takes place in

the liver, and the iron thus liberated is probably appropriated to the advancement of new blood-corpuscles.

It is a function of the skin, also, to remove this metamorphosing hæmatine, thus acting in concert with the liver. The color of the skin in health is mainly dependent upon this function, and it is more or less dark in proportion to the amount of degenerating hæmatine it is required to carry off.

Prof. J. W. Draper, in his *Human Physiology*, in speaking of the influence of the action of the liver on the complexion and the origin of color in the races of mankind, observes: "If this organ be in any manner enfeebled in its duty, and no other avenue is open through which the degenerating hæmatine may escape, it must accumulate in the circulation, and be deposited here and there in suitable places. Under such circumstances there arises a tendency for its accumulation in a temporary manner in the lower and more spherical cells of the cuticle, from which it is removed by their gradual exuviation and destruction as they become more superficial. The temporary deposit of the coloring matter in this situation imparts to the skin a shade more or less deep. It may amount to a perfect blackness; for the origin of the black pigment of the negro is the same as that of the black pigment of the eye in all races, and the predominating percentage of iron it presents plainly betrays that it arises from a degenerating hæmatine in which the same metal abounds."

"I believe, therefore, that the coloration of the skin, whatever the particular tint may be—tawny, yellow, olive, red, or black—is connected with the manner in which the liver is discharging its function."

"It is not to be forgotten that the coloration of the skin, though apparently persistent, is tending continually to a removal, because of the oxidation which is taking place as the pigment-cells approach the surface of the cuticle in the process of desquamation; but as this goes on, new cells and new pigment are perpetually forming beneath, to undergo destruction in their turn. Under this point of view, the complexion of the skin is an index of the energy with which that tissue is addressing itself for the removal of metamorphosing hæmatine. In accomplishing this removal the liver in the fair races of mankind exerts a sufficient activity; but in hot climates, the habitation of the black races, either through a diminished power of that gland or because of an increased production of effete

pigment, the skin has to lend its aid, and the degree to which it does this is betrayed by the depth of its hue."

It is probable, then, that it is a duty of the skin to assist the liver in disposing of the metamorphosing hæmatine, and that it derives its color from the discharge of this function. Judging from analogy, we might expect to find that anything which would impede the activity of the one would increase that of the other.

This, I think, we find demonstrated in cases of icterus neonatorum. Here there is no disease of the liver, or any obstruction to the biliary ducts; but, owing to the highly congested condition of the liver at birth, and the system not having adapted itself to its new condition, the activity of the liver is interfered with, and the degenerating hæmatine accumulating in the blood from the disintegration of the worn-out blood-corpuscles must now be carried off by the skin, and icterus is the result. This I conceive to be the true pathology of jaundice.

I see no reason to suppose that bile is first formed by the liver, and subsequently absorbed into the blood; if this were true, how can we account for jaundice occurring in cases of acholia, where the secreting portion of the liver is almost entirely destroyed by fatty degeneration, cancer, or cirrhosis. In such instances scarcely any bile is formed, and there is a free escape for the little which is formed.

In the majority of fatal cases of jaundice, and even in those in which the skin and urine were deeply colored at the time of death, the gall-bladder and gall-ducts are found almost empty, and the liver not more deeply jaundiced than the other tissues.

The jaundice must have been the result of a defective action on the part of the liver. Of course there could have been no reabsorption of bile, and this applies equally in all cases where there is no impediment to the flow of bile. It is doubtful to my mind if the coloring matter of the bile is ever reabsorbed in sufficient quantity to produce jaundice.

The only hypothesis by which we can account for this phenomenon is to suppose that the jaundice is the result of the retention of the coloring matter of the bile in the blood, and if this were true the bile should accumulate in the blood.

This we have already seen is not the case, and the reason why the coloring matter of the bile cannot be detected in the blood is simply because it does not exist there. As the worn-out blood-corpuscles disintegrate, they liberate their hæmatine; there is a

tendency to the accumulation of this substance; and it is from it that the liver forms cholepyrrhine and the skin hæmatoidine, the hæmatine giving up iron and acquiring water in these organs; but so long as the hæmatine remains in the circulation, it is probable that this change does not take place.

Perhaps the retention of the other elements of the bile in the blood may hasten the disintegration of the blood-cells.

The kidneys also may participate in the removal of hæmatine, or it may even be extravasated among the tissues, and we would then have all the tissues and organs of the body colored by this metamorphosing substance, as is frequently the case in yellow fever. The shade of color may vary from a light yellow to a perfect black. The bronze skin, once attributed to disease of the supra-renal capsules, is probably a variety of jaundice due also to hæmatoidine. The color of the skin in Albinos is the result of congenital deficiency of pigments, and must be referred to the defective manner in which the skin is performing its function, the liver being sufficient for the removal of all the degenerating hæmatine. In the negro and dark races of mankind, this activity of the liver is diminished, and in proportion as the skin is required to share in its duties the skin is more or less dark from the deposit of pigment.

The frequent absence of great constitutional disturbance in many cases of jaundice can be readily accounted for by the increased activity of the skin and kidneys, being sufficient for the removal of the effete constituents of the blood which should have passed through the liver as bile; the skin eliminating the coloring matter chiefly, while the kidneys carry off, besides, the biliary substance proper and probably cholesterine.

It is possible that in case of the failure of the liver to secrete bile from the blood, the elements out of which it is formed accumulating in the blood may there exert a deleterious action on the blood-corpuscles, hastening their dissolution, and thus producing a very rapid accumulation of hæmatine and other substances usually carried off by the liver; in this case the skin and kidneys might not be sufficient for its removal, and the free hæmatine having an affinity for the tissues, it would be extravasated among them, and then become changed into hæmatoidine. In this way we can account for the universal presence of hæmatoidine in some cases of jaundice, the tissues becoming colored by a sort of imbibition.

In the experiments of Kühne before referred to, where the ductus

communis choledochus of a dog was tied, it was remarkable that the only evidence of the dog's icteric condition was to be found in the urine. From this it would appear that the icteric condition was not dependent upon the presence of bile in the blood. If it were so, the blood should have imparted a color to the skin and other tissues. May we not infer, from these experiments, that the difficulty of producing icterode condition of the dog's skin is to be referred to the comparative inactivity and peculiar function of the skin of these animals, and also to the very great activity of the kidneys and salivary glands, especially in dogs?

Dr. C. E. Isaacs, in his paper on the "Function of the Malpighian Bodies of the Kidneys," states that he tied the ductus communis choledochus of a large gray cat in the hope of detecting the elements of the bile in the Malpighian bodies and tubes of the kidney.

This cat lived seventy-five hours, and seemed to suffer but little from the operation. On taking off the skin the under surface of it was observed in several points to be of a bright yellow color. The bile-duct was partially ulcerated, so as to allow of the escape of a few drops of bile. There was slight peritonitis. Thin sections of the kidney exhibited the Malpighian bodies of a light yellow color. Nothing remarkable was observed in the tubes. On adding a portion of a drop of nitric acid to the specimen under the microscope, the Malpighian bodies showed a slight play of colors, among which blue, green, and violet could be most distinctly seen. The same effect was seen in the tubes, but not so clearly. It was observed also on testing the urine. Doctor Isaacs repeated this experiment on a large yellow dog, and in addition tied the ureters. This animal lived forty-eight hours. The Malpighian bodies were somewhat congested, and of a yellowish-red color. He was disappointed at the result of this experiment, not being able to detect the presence of bile in any part of the kidney or in the urine, although all the known tests were carefully and repeatedly made use of. He then made comparative tests with the bile from the gall-bladder of this dog, and, what was exceedingly surprising, could not succeed in producing the usual peculiar appearances either with nitric acid, sulphuric acid and sugar, or any of the usual tests for bile, even after the most careful trials. Dr. Isaacs was unable to account for this phenomenon.

Is it not probable that the ligature of the ureters in this last experiment obstructed the tubes and Malpighian bodies of the

kidneys, and thus arrested the function of these organs? The ligature of the ductus communis choledochus having acted in a similar manner upon the function of the liver, there was thus left no glandular organ sufficient for the elimination of the elements of the bile from the blood. If this experiment had been made upon man, doubtless the skin would have taken on itself this function, and removed a certain amount of these elements from the blood, and acquired a jaundiced hue.

These experiments seem to indicate that the substances in question require an appropriate glandular structure for their elimination. The dog's skin is not of such a character. With the human skin, however, it is quite different, for we know that it participates to a very large extent in the removal of fluid substances from the body. I think, therefore, that the results of experiments upon dogs to elucidate the pathological conditions of the human skin and glandular organs should be received with a close scrutiny.

Stahl and Lieberkühn have detected urea in the bile after the extirpation of the kidneys. This shows a vicarious action on the part of the liver. In the experiments of Frerichs and Kühne upon dogs it was noted that hæmaturia was of frequent occurrence. This was probably due to the overtasked and congested condition of the kidneys in their efforts to assume the function of the liver.

This congested condition of the kidneys is of frequent occurrence in jaundice. It was well illustrated in Case IX. by the presence of a large amount of tube-casts in the urine during the first part of the attack, but as the liver gradually resumed its function they entirely disappeared.

Résumé.—We may briefly sum up the facts here submitted, as follows:—

1st. There is no sufficient proof of the reabsorption of the coloring matter of the bile; it is not found in the blood, and cannot, therefore, occur in the urine or skin unless formed in these organs from elements derived from the blood.

2d. That effete hæmatine, a substance from which the liver derives the coloring matter of the bile, does exist in the blood. It is a function of the skin to aid in the removal of this metamorphosing hæmatine, which, as it passes through the skin, changes into hæmatoidine.

3d. That the tests used for the detection of the coloring matter of the bile are not reliable on account of similar color-tests being yielded by hæmatoidine. To distinguish between these substances

we must refer to their source, and in doing so we find in some cases of jaundice there is found, at *post-mortem* examinations, an almost entire absence of bile in the intestines, gall-bladder, and gall-ducts. There is here then no source from which the bile could be reabsorbed into the blood; and, if not reabsorbed, it could only occur in the blood from retention, and, if retained, it ought to be detected.

Now, if it is not possible for us to detect the coloring matters of the bile in the blood, it is fair to conclude that it does not exist there; and, if it does not exist in the blood, how can we expect to find it in the tissues and secretions? and why should the blood impart the yellow color in question?

4th. Hæmatoidine is a substance very readily derived from the hæmatine of the blood. It is a metamorphosing substance, which even in health is in part carried off by the skin. This substance was found to be abundant in the skin and tissues examined microscopically. From this it would appear that the coloring matter found in the urine must have been derived from the metamorphosing hæmatine of the blood, and was also hæmatoidine.

5th. It is probable that the coloring matter of the bile is never reabsorbed in sufficient quantity to produce general jaundice. This affection is to be attributed to the presence of an undue amount of hæmatoidine in the skin and parts affected.

Finally. All cases of jaundice, with the exception of those produced by poisons acting upon the blood and those occasioned by nervous shocks, may be included under one common cause, viz: A defective action on the part of the secreting substance of the liver, in consequence of which the elimination of the metamorphosing hæmatine is arrested, and the skin and kidneys are required to effect its removal.

Jaundice arising from blood-poisons, nervous shocks, &c. must be attributed to the accumulation of degenerating hæmatine in the blood to such an extent as to require an increased action on the part of the skin and kidneys for its removal.

PLAN OF ORGANIZATION

OF THE

AMERICAN MEDICAL ASSOCIATION.

PLAN OF ORGANIZATION.[1]

REGULATIONS.

I. TITLE OF THE ASSOCIATION.

THIS institution shall be known and distinguished by the name and title of "THE AMERICAN MEDICAL ASSOCIATION."

II. MEMBERS.

The members of this institution shall collectively represent and have cognizance of the common interests of the medical profession in every part of the United States; and shall hold their appointment to membership either as delegates from local institutions, as members by invitation, or as permanent members.

The Delegates shall receive the appointment from permanently organized medical societies, medical colleges, hospitals, lunatic asylums, and other permanently organized medical institutions of good standing in the United States, and from the American Medical Society of Paris. Each delegate shall hold his appointment for one year, and until another is appointed to succeed him, and shall participate in all the business and affairs of the Association.

Each local society shall have the privilege of sending to the Association one delegate for every ten of its regular resident members, and one for every additional fraction of more than half of this number. The faculty of every regular constituted medical

[1] In accordance with the following resolution, passed at the session in Washington, the Committee of Publication have introduced into the Plan of Organization all the resolutions adopted at the various meetings for the government of the Association. Those for which there was no appropriate place have been appended.

Resolved, That the Committee on Publication be instructed to collect all the by-laws and resolutions which have not been rescinded through the different volumes of the *Transactions*, to arrange them under their respective heads, and append the same to the Constitution. (See page 50.)

college, or chartered school of medicine, shall have the privilege of sending two delegates. The professional staff of every chartered or municipal hospital containing a hundred inmates or more, shall have the privilege of sending two delegates; and every other permanently organized medical institution of good standing shall have the privilege of sending one delegate.

The sum of three dollars shall be assessed, annually, upon each of the delegates to the sessions of the Association, as well as upon each of its permanent members, for the purpose of raising a fund to defray the expenses of printing the *Transactions*. The payment of this assessment shall be required of the delegates and members in attendance upon the sessions of the Association, previously to their taking their seats, and participating in the business of the session; and of all others on or before the first of September in each year.

Each delegate and member who has paid his annual assessment, in accordance with the terms of the above resolution, shall be entitled to receive a copy of the printed *Transactions* of the session.

No individual who shall be under sentence of expulsion or suspension from any State or Local Medical Society, of which he may have been a member, shall be received as a delegate to this body, or be allowed any of the privileges of a member, until he shall have been relieved from the said sentence by such State or Local Society.

No one expelled from this Association shall at any time thereafter be received as a delegate or member, unless by a three-fourths vote of the members present at the meeting to which he is sent, or at which he is proposed.

No State or local society shall be entitled to representation in this Association, that has not adopted its Code of Ethics.

No State or local society that has intentionally violated or disregarded any article or clause in the Code of Ethics, shall any longer be entitled to representation in this body.

No organization or institution, entitled to representation in this Association, shall be considered in good standing, which has not adopted its Code of Ethics.

Delegates representing the medical staffs of the United States Army and Navy, shall be appointed by the Chiefs of the Army and Navy Medical Bureaux. The number of delegates so appointed shall be four from the army medical officers, and an equal number from the navy medical officers.

The Members by Invitation shall consist of practitioners of reputable standing from sections of the United States not otherwise represented at the meeting. They shall receive their appointment by invitation of the meeting, after an introduction from and being vouched for by, any of the members present, or any of the absent permanent members. They shall hold their connection with the Association until the close of the annual session at which they are received; and shall be entitled to participate in all its affairs, as in the case of delegates.

No assessment whatever shall be made against members by invitation, but they shall also be entitled to a copy of the printed *Transactions*, by paying the sum assessed upon delegates in attendance.

The Permanent Members shall consist of all those who have served in the capacity of delegates, and of such other members as may receive the appointment by unanimous vote.

No permanent member who is not present at a meeting of the Association shall be required to pay the annual assessment; but no such permanent member shall be entitled to receive a copy of the printed *Transactions* unless he pay into the treasury a sum not less than the annual assessment paid by the delegates and permanent members in attendance; all the names of permanent members that have been left off the published list, shall be reinserted therein in the next volume of *Transactions*.

Permanent members shall at all times be entitled to attend the meetings, and participate in the affairs of the Association, so long as they shall continue to conform to its regulations, but without the right of voting; and, when not in attendance, they shall be authorized to grant letters of introduction to reputable practitioners of medicine residing in their vicinity, who may wish to participate in the business of the meetings, as provided for members by invitation.

Every member elect, prior to the permanent organization of the annual meeting, or before voting on any question after the meeting has been organized, must sign these regulations, inscribing his name and address in full, specifying in what capacity he attends, and, if a delegate, the title of the institution from which he has received his appointment.

No one shall be permitted to address the Association, except he shall have first given his name and residence, which shall be distinctly announced from the Chair, and the member be required to

go forward and speak from the stand, and not more than ten minutes at one time.

It is the duty of every member of this Association, who learns that any existing medical school departs from the published conditions of graduation, to report the fact at the annual meetings; and, on proof of the fact, such school shall be deprived of its representation in this body.

III. MEETINGS.

The regular meetings of the Association shall be held annually, and commence on the first Tuesday in May, or first Tuesday in June. The place of meeting shall never be the same for any two years in succession, and shall be determined, with the time of meeting, for each next succeeding year by vote of the Association.

IV. OFFICERS.

The officers of the Association shall be a President, four Vice-Presidents, one Permanent and one Assistant Secretary, and a Treasurer. They shall be nominated by a special committee of one member from each State represented at the meeting, and shall be elected by vote on a general ticket. Each officer shall hold his appointment for one year, and until another is elected to succeed him.

The President and Vice-Presidents shall assume the functions of their respective offices at the beginning of the annual meeting next succeeding their election; other officers shall take office immediately upon their election.

The President shall preside at the meetings, preserve order and decorum in debate, give a casting vote when necessary, and perform all the other duties that custom and parliamentary usage may require.

The President shall be authorized annually to appoint delegates to represent this Association at the meetings of the British Association, the American Medical Society at Paris, and such other scientific bodies in Europe as may be affiliated with us.

The Vice-Presidents, when called upon, shall assist the President in the performance of his duties, and during the absence, or at the request of the President, one of them shall officiate in his place.

The Permanent Secretary shall record the minutes, and authenticate the proceedings, give due notice of the time and place of each next

ensuing annual meeting; notify all members of committees of their appointment and of the duties assigned to them; hold correspondence with other permanently organized medical societies, both domestic and foreign; serve as a member of the Committee on Publication; see that the published *Transactions* are properly distributed to all the members who have paid their annual assessment, and carefully preserve the archives and unpublished transactions of the Association.

The Assistant Secretary shall aid the Permanent Secretary in recording and authenticating the proceedings of the Association, serve as a member of the Committee of Arrangements, and perform all the duties of Permanent Secretary temporarily, whenever that office shall be vacant, either by death, resignation, or removal.

The Treasurer shall have the immediate charge and management of the funds and property of the Association. He shall be a member of the Committee of Publication, to which committee he shall give bonds for the safe keeping and proper use and disposal of his trust. And through the same committee he shall present his accounts, duly authenticated, at every regular meeting.

V. STANDING COMMITTEES.

The following standing committees shall be organized at every annual meeting, for preparing, arranging, and expediting business for each next ensuing year, and for carrying into effect the orders of the Association not otherwise assigned—namely, a Committee of Arrangements and a Committee of Publication.

The Committee of Arrangements shall, if no sufficient reasons prevent, be mainly composed of seven members residing in the place at which the Association is to hold its next annual meeting; and shall be required to provide suitable accommodations for the meeting, to verify and report upon the credentials of membership, to receive and announce all essays and memoirs voluntarily communicated, either by members of the Association, or by others through them, and to determine the order in which such papers are to be read and considered.

The Committee of Publication, of which the Secretaries and Treasurer must constitute a part, shall have charge of preparing for the press, and of publishing and distributing such of the proceedings, transactions, and memoirs of the Association as may be ordered to be published. The six members of this Committee, who have not

the immediate management of the funds, shall also, in their own names, as agents for the Association, hold the bond of the Treasurer for the faithful execution of his office, and shall annually audit and authenticate his accounts, and present a statement of the same in the annual report of the Committee; which report shall specify the character and cost of the publications of the Association during the year, the number of copies still at the disposal of the meeting, the funds on hand for further operations, and the probable amount of the assessment to be laid on each member of the Association for covering its annual expenditures.

The Committee of Publication shall be instructed to print, conspicuously, at the beginning of the forthcoming volume of the *Transactions*, the following disclaimer, viz: The American Medical Association, although formally accepting and publishing the reports of the various standing committees, holds itself wholly irresponsible for the opinions, theories, or criticisms therein contained, except when so decided by special resolution.

The Committee of Publication shall have power to furnish the chairmen of committees on epidemics with extra copies of their reports, respectively, at the expense of the Association—the said extra copies not to exceed one hundred.

It shall be the duty of the Publication Committee to append to each volume of the *Transactions*, hereafter published, a copy of the Constitution of the Association.

Every paper received by this Association and ordered to be published, and all plates or other means of illustration, shall be considered the exclusive property of the Association, and shall be published and sold for the exclusive benefit of the Association.

No report or other paper shall be entitled to publication in the volume for the year in which it shall be presented to the Association, unless it be placed in the hands of the Committee of Publication on or before the first of June. It must also be so prepared as to require no material alteration or addition at the hands of its author.

Authors of papers are required to return their proofs within two weeks after their reception; otherwise they will be passed over and omitted from the volume.

The Committee of Publication shall be instructed to append the Code of Ethics of the American Medical Association to each volume of its annual *Transactions*.

It shall be the duty of the Committee of Publication to fix the

price at which the printed *Transactions* of each session will be furnished to others than delegates and members; provided that in no case shall the said price be less than three dollars.

The Committee on Prize Essays.—A committee of five members shall be appointed, to be called the Committee on Prize Essays, whose duty it shall be, in the interval between the present and the next succeeding sessions, to receive papers upon any subject, from any persons who may choose to send them, to decide upon the merits of these papers, and to select for presentation to the Association, at its next session, such as they may deem worthy of being thus presented.

The Committee on Prize Essays shall have power to form such regulations as to the mode in which the papers are to be presented and as to the observing of secrecy, as they may think proper.

The selection of the members of this committee shall be referred to the Nominating Committee, whose duty it will be to appoint the chairmen of the several special committees, as above directed, with this restriction, that the individuals composing it shall reside in the same neighborhood.

Two prizes of one hundred dollars each shall be awarded to the best two volunteer communications reported on favorably by the Committee, and directed by the Association to be published.

All voluntary communications hereafter presented to the Association shall be referred to a special committee of ———, to be appointed by the President on the first day of each annual meeting, whose duty it shall be to examine such communications, and report upon the propriety of the presentation and reference to the Committee of Publication.

Special committees on *Medical Education* and *Medical Literature* shall be appointed, consisting each of five members, and the Nominating Committee shall be instructed to nominate such committees to the Association.

A standing committee shall be appointed by this Association to procure memorials of the eminent and worthy dead among the distinguished physicians of our country, and present them to this Association for publication in their *Transactions.*

A standing committee of ——— members shall be appointed by this Association, on the subject of Insanity as it prevails in this country, including its causation—as hereditary transmission; educational influences—physical and moral, social and political insti-

tutions, &c.; its forms and complications; curability; means of prevention, &c.

VI. FUNDS AND APPROPRIATIONS.

Funds shall be raised by the Association for meeting its current expenses and awards from year to year, but never with the view of creating a permanent income from investments. Funds may be obtained by an equal assessment of not more than three dollars annually, on each of the members; by individual voluntary contributions for specific objects; and by the sale and disposal of publications, or of works prepared for publication.

The funds may be appropriated for defraying the expenses of the annual meetings, including the necessary expenses of the Permanent Secretary in maintaining the necessary correspondence of the Association; for publishing the proceedings, memoirs, and transactions of the Association; for enabling the standing committees to fulfil their respective duties, conduct their correspondence, and procure the materials necessary for the completion of their stated annual reports; for the encouragement of scientific investigations, by prizes and awards of merit; and for defraying the expenses incidental to specific investigations under the instruction of the Association, where such investigations have been accompanied with an order on the Treasurer to supply the funds necessary for carrying them into effect.

VII. PROVISION FOR AMENDMENTS.

No amendment or alteration shall be made in any of these articles, except at the annual meeting next subsequent to that at which such amendment or alteration may have been proposed; and then only by the voice of three-fourths of all the members in attendance.

And, in acknowledgment of having adopted the foregoing propositions, and of our willingness to abide by them, and use our endeavors to carry into effect the objects of this Association, as above set forth—we have hereunto set our names.

NAMES OF MEMBERS.	RESIDENCE.	INSTITUTIONS REPRESENTED.

In connection with the foregoing "Plan of Organization," the following was adopted as one of the ordinances, or by-laws of the Association, viz:—

THE ORDER OF BUSINESS.

The order of business at the annual meetings of the American Medical Association shall at all times be subject to the vote of three-fourths of all the members in attendance; and until permanently altered, except when for a time suspended, it shall be as follows, viz:—

1. The temporary organization of the meeting preparatory to the election of officers.
2. The report of the Committee of Arrangements on the credentials of members; after the latter have registered their names and addresses, and the titles of the institutions which they represent.
3. The calling of the roll.
4. The election of officers.
5. The reading of minutes.
6. The reception of members not present at the opening of the meeting, and the reading of notes from absentees.
7. The reception of members by invitation.
8. The reading and consideration of the stated annual reports from the standing committees.[1]
9. The selection of the next place of annual meeting.
10. The new appointments to fill the standing committees.

[1] At the meeting in Louisville it was recommended to divide the Association into sections, in order to facilitate the transaction of business, and the Committee of Arrangements for the ensuing year was requested to provide suitable accommodations for the services of these sections, and each section was further authorized

11. The choice of permanent members by vote.

12. Resolutions introducing new business, and instructions to the permanent committees.

13. The reading and discussion of voluntary communications introduced through the Committee of Arrangements.

14. Unfinished and miscellaneous business.

15. Adjournment.

to make such arrangements as may be required for the proper transaction of its business.

The following sections were recommended:—

1. Anatomy and Physiology.
2. Chemistry and Materia Medica.
3. Practical Medicine and Obstetrics.
4. Surgery.
5. Meteorology, Medical Topography, and Epidemic Diseases.
6. Medical Jurisprudence and Hygiene.

ORDINANCES.

THE following *Resolutions* adopted at different meetings of the Association, though not incorporated into the *Plan of Organization*, constitute a portion of the *Regulations* for the government of the Association.

RESOLUTIONS ADOPTED AT THE FOURTH ANNUAL MEETING, HELD IN CHARLESTON, IN 1851.

(See TRANSACTIONS, vol. iv.)

Resolved, That committees of three be appointed to investigate and report severally on the following subjects:—

1st. Causes of tubercular diathesis.

2d. Blending and conversion of the types of fever.

3d. The mutual relations of yellow fever and bilious remittent fever.

4th. Epidemic erysipelas.

5th. Acute and chronic diseases of the neck of the uterus.

6th. Dengue.

7th. The milk sickness so called.

8th. Endemic prevalence of tetanus.

9th. Diseases of parasitic origin.

10th. Physiological peculiarities and diseases of the Negro.

11th. The action of water on lead pipes, and the diseases which proceed from it.

12th. The alkaloids which may be substituted for quinia.

13th. Permanent cure of reducible hernia.

14th. Results of surgical operations for the relief of malignant diseases.

15th. Statistics of operations for removal of stone in the bladder.

16th. Cold water dressings.

17th. The sanitary principles applicable to the construction of dwellings.

18th. The toxicological and medicinal properties of our cryptogamic plants.

19th. Agency of the refrigeration produced through upward radiation of heat as an exciting cause of disease.

20th. Epidemic diseases of New England and New York.

21st. Epidemic diseases of Pennsylvania, New Jersey, Delaware, and Maryland.

22d. Epidemic diseases of Virginia and North Carolina.

23d. Epidemic diseases of South Carolina, Georgia, Florida, and Alabama.

24th. Epidemic diseases of Mississippi, Louisiana, Texas, and Arkansas.

25th. Epidemic diseases of Tennessee and Kentucky.

26th. Epidemic diseases of Missouri, Illinois, Iowa, and Wisconsin.

27th. Epidemic diseases of Indiana, Ohio, and Michigan.

Resolved, That a Committee on Nomination be appointed, whose duty it shall be to nominate one chairman for each of the above committees.

Resolved, That each of the chairmen thus nominated shall select, at his earliest convenience, two members of the Association, to complete the committee.

Resolved, That the delegates to the Association be requested to appoint committees, at one or more central points within their respective States, for the purpose of aiding the Committee of Publication in procuring subscribers, and in distributing the printed volumes of *Transactions* to said subscribers, as well as to the members of the Association residing within the neighborhood of the said committees respectively. (Vol. vii. p. 22.)

Resolved, That this Association appoint a special committee for each State and Territory represented of —— members, whose duty it shall be to report upon its medical topography, epidemic diseases and the most successful treatment thereof, and that the same shall continue to hold their office for three years.

Resolved, That, as other States and Territories, not now represented, become so by delegates duly appointed to this National Association, similar committees shall be appointed for like purposes, and that they also shall hold their office for three years.

Resolved, That in the appointment of gentlemen of education and experience in the affairs of their own State we have the best guarantee that the important objects we seek will be more satisfactorily accomplished, and the profession as well as the public interest thereby better served.

Resolved, That the committees heretofore appointed by this Association, at its session in Charleston, for a similar object, be and the same are hereby discharged. (Vol. viii.)

Resolved, That the resolutions adopted by the Association at its session in St. Louis, in 1854, requiring the Committee of Publication to be selected from the place where the meeting should be held, be repealed. (Vol. ix. p. 24.)

Resolved, That the general meeting of the Association, after this day, shall be restricted to the morning sessions; and the afternoon sessions, commencing at three o'clock, shall be devoted to the hearing of papers and discussions in the several sections.

Resolved, That each section shall choose its own officers, and make its own rules of order.

Resolved, That all essays, voluntary communications, and reports, except those of the officers of the Association, the reports of the Committees on Medical Education, Medical Literature, and Prize Essays, shall be first presented to the Association by a brief abstract, and referred to the appropriate sections, in which they shall be examined and discussed, after which they shall be returned to the Secretary of the Association, accompanied by an expression of opinion, as to whether they are worthy of publication or not. And the Secretary shall pass all such as are thus designated to be worthy, directly to the Committee of Publication; and such as are not so designated, shall be retained by the Secretary, or returned to their authors, as the latter may indicate. (Vol. x. pp. 28, 29.)

Resolved, That this Association will not recognize, as regularly organized, any college which does not require evidence of suitable *preliminary education* from all applicants for collegiate instruction. (Vol. x. p. 33.)

Resolved, That this Association recognizes, as a regularly organized medical college, one which has been represented at any meeting of this Convention, and which complies with the preceding rules and directions. (Vol. x. p. 34.)

Resolved, That no one appointed on a special committee, who fails to report at the meeting next succeeding the one at which he is appointed, shall be continued on such committee, or appointed on any other, unless a satisfactory excuse is offered. (Vol. x. p. 38.)

CODE OF ETHICS

OF THE

AMERICAN MEDICAL ASSOCIATION

ADOPTED MAY, 1847.

CODE OF MEDICAL ETHICS.

OF THE DUTIES OF PHYSICIANS TO THEIR PATIENTS, AND OF THE OBLIGATIONS OF PATIENTS TO THEIR PHYSICIANS.

ART. I.—*Duties of physicians to their patients.*

§ 1. A physician should not only be ever ready to obey the calls of the sick, but his mind ought also to be imbued with the greatness of his mission, and the responsibility he habitually incurs in its discharge. Those obligations are the more deep and enduring, because there is no tribunal other than his own conscience to adjudge penalties for carelessness or neglect. Physicians should, therefore, minister to the sick with due impressions of the importance of their office; reflecting that the ease, the health, and the lives of those committed to their charge, depend on their skill, attention, and fidelity. They should study, also, in their deportment, so to unite *tenderness* with *firmness*, and *condescension* with *authority*, as to inspire the minds of their patients with gratitude, respect, and confidence.

§ 2. Every case committed to the charge of a physician should be treated with attention, steadiness, and humanity. Reasonable indulgence should be granted to the mental imbecility and caprices of the sick. Secrecy and delicacy, when required by peculiar circumstances, should be strictly observed; and the familiar and confidential intercourse to which physicians are admitted in their professional visits, should be used with discretion, and with the most scrupulous regard to fidelity and honor. The obligation of secrecy extends beyond the period of professional services;—none of the privacies of personal and domestic life, no infirmity of disposition or flaw of character observed during professional attendance, should ever be divulged by the physician except when he is imperatively required to do so. The force and necessity of this obligation

are indeed so great, that professional men have, under certain circumstances, been protected in their observance of secrecy by courts of justice.

§ 3. Frequent visits to the sick are in general requisite, since they enable the physician to arrive at a more perfect knowledge of the disease—to meet promptly every change which may occur, and also tend to preserve the confidence of the patient. But unnecessary visits are to be avoided, as they give useless anxiety to the patient, tend to diminish the authority of the physician, and render him liable to be suspected of interested motives.

§ 4. A physician should not be forward to make gloomy prognostications, because they savor of empiricism, by magnifying the importance of his services in the treatment or cure of the disease. But he should not fail, on proper occasions, to give to the friends of the patient timely notice of danger when it really occurs; and even to the patient himself, if absolutely necessary. This office, however, is so peculiarly alarming when executed by him, that it ought to be declined whenever it can be assigned to any other person of sufficient judgment and delicacy. For, the physician should be the minister of hope and comfort to the sick; that, by such cordials to the drooping spirit, he may smooth the bed of death, revive expiring life, and counteract the depressing influence of those maladies which often disturb the tranquillity of the most resigned in their last moments. The life of a sick person can be shortened not only by the acts, but also by the words or the manner of a physician. It is, therefore, a sacred duty to guard himself carefully in this respect, and to avoid all things which have a tendency to discourage the patient and to depress his spirits.

§ 5. A physician ought not to abandon a patient because the case is deemed incurable; for his attendance may continue to be highly useful to the patient, and comforting to the relatives around him, even in the last period of a fatal malady, by alleviating pain and other symptoms, and by soothing mental anguish. To decline attendance, under such circumstances, would be sacrificing to fanciful delicacy and mistaken liberality, that moral duty, which is independent of, and far superior to, all pecuniary consideration.

§ 6. Consultations should be promoted in difficult or protracted cases, as they give rise to confidence, energy, and more enlarged views in practice.

§ 7. The opportunity which a physician not unfrequently enjoys of promoting and strengthening the good resolutions of his patients,

suffering under the consequences of vicious conduct, ought never to be neglected. His counsels, or even remonstrances, will give satisfaction, not offence, if they be proffered with politeness, and evince a genuine love of virtue, accompanied by a sincere interest in the welfare of the person to whom they are addressed.

ART. II.—*Obligations of patients to their physicians.*

§ 1. The members of the medical profession, upon whom is enjoined the performance of so many important and arduous duties towards the community, and who are required to make so many sacrifices of comfort, ease, and health, for the welfare of those who avail themselves of their services, certainly have a right to expect and require, that their patients should entertain a just sense of the duties which they owe to their medical attendants.

§ 2. The first duty of a patient is to select as his medical adviser one who has received a regular professional education. In no trade or occupation, do mankind rely on the skill of an untaught artist; and in medicine, confessedly the most difficult and intricate of the sciences, the world ought not to suppose that knowledge is intuitive.

§ 3. Patients should prefer a physician whose habits of life are regular, and who is not devoted to company, pleasure, or to any pursuit incompatible with his professional obligations. A patient should, also, confide the care of himself and family, as much as possible, to one physician; for a medical man who has become acquainted with the peculiarities of constitution, habits, and predispositions of those he attends, is more likely to be successful in his treatment than one who does not possess that knowledge.

A patient who has thus selected his physician should always apply for advice in what may appear to him trivial cases, for the most fatal results often supervene on the slightest accidents. It is of still more importance that he should apply for assistance in the forming stage of violent diseases; it is to a neglect of this precept that medicine owes much of the uncertainty and imperfection with which it has been reproached.

§ 4. Patients should faithfully and unreservedly communicate to their physician the supposed cause of their disease. This is the more important, as many diseases of a mental origin simulate those depending on external causes, and yet are only to be cured by ministering to the mind diseased. A patient should never be afraid of thus making his physician his friend and adviser; he

should always bear in mind that a medical man is under the strongest obligations of secrecy. Even the female sex should never allow feelings of shame or delicacy to prevent their disclosing the seat, symptoms, and causes of complaints peculiar to them. However commendable a modest reserve may be in the common occurrences of life, its strict observance in medicine is often attended with the most serious consequences, and a patient may sink under a painful and loathsome disease, which might have been readily prevented had timely intimation been given to the physician.

§ 5. A patient should never weary his physician with a tedious detail of events or matters not appertaining to his disease. Even as relates to his actual symptoms, he will convey much more real information by giving clear answers to interrogatories, than by the most minute account of his own framing. Neither should he obtrude upon his physician the details of his business nor the history of his family concerns.

§ 6. The obedience of a patient to the prescriptions of his physician should be prompt and implicit. He should never permit his own crude opinions as to their fitness to influence his attention to them. A failure in one particular may render an otherwise judicious treatment dangerous, and even fatal. This remark is equally applicable to diet, drink, and exercise. As patients become convalescent, they are very apt to suppose that the rules prescribed for them may be disregarded, and the consequence, but too often, is a relapse. Patients should never allow themselves to be persuaded to take any medicine whatever, that may be recommended to them by the self-constituted doctors and doctresses who are so frequently met with, and who pretend to possess infallible remedies for the cure of every disease. However simple some of their prescriptions may appear to be, it often happens that they are productive of much mischief, and in all cases they are injurious, by contravening the plan of treatment adopted by the physician.

§ 7. A patient should, if possible, avoid even the *friendly visits of a physician* who is not attending him—and when he does receive them, he should never converse on the subject of his disease, as an observation may be made, without any intention of interference, which may destroy his confidence in the course he is pursuing, and induce him to neglect the directions prescribed to him. A patient should never send for a consulting physician without the express consent of his own medical attendant. It is of great importance that physicians should act in concert; for, although their

modes of treatment may be attended with equal success when employed singly, yet conjointly they are very likely to be productive of disastrous results.

§ 8. When a patient wishes to dismiss his physician, justice and common courtesy require that he should declare his reasons for so doing.

§ 9. Patients should always, when practicable, send for their physician in the morning, before his usual hour of going out; for, by being early aware of the visits he has to pay during the day, the physician is able to apportion his time in such a manner as to prevent an interference of engagements. Patients should also avoid calling on their medical adviser unnecessarily during the hours devoted to meals or sleep. They should always be in readiness to receive the visits of their physician, as the detention of a few minutes is often of serious inconvenience to him.

§ 10. A patient should, after his recovery, entertain a just and enduring sense of the value of the services rendered him by his physician; for these are of such a character, that no mere pecuniary acknowledgment can repay or cancel them.

OF THE DUTIES OF PHYSICIANS TO EACH OTHER, AND TO THE PROFESSION AT LARGE.

ART. I.—*Duties for the support of professional character.*

§ 1. Every individual, on entering the profession, as he becomes thereby entitled to all its privileges and immunities, incurs an obligation to exert his best abilities to maintain its dignity and honor, to exalt its standing, and to extend the bounds of its usefulness. He should, therefore, observe strictly such laws as are instituted for the government of its members;—should avoid all contumelious and sarcastic remarks relative to the faculty as a body; and while, by unwearied diligence, he resorts to every honorable means of enriching the science, he should entertain a due respect for his seniors, who have, by their labors, brought it to the elevated condition in which he finds it.

§ 2. There is no profession, from the members of which greater purity of character, and a higher standard of moral excellence are required, than the medical; and to attain such eminence, is a duty every physician owes alike to his profession and to his patients. It is due to the latter, as without it he cannot command their respect and confidence, and to both, because no scientific attainments

can compensate for the want of correct moral principles. It is also incumbent upon the faculty to be temperate in all things, for the practice of physic requires the unremitting exercise of a clear and vigorous understanding; and, on emergencies, for which no professional man should be unprepared, a steady hand, an acute eye, and an unclouded head may be essential to the well-being, and even to the life, of a fellow-creature.

§ 3. It is derogatory to the dignity of the profession to resort to public advertisements, or private cards, or handbills, inviting the attention of individuals affected with particular diseases—publicly offering advice and medicine to the poor gratis, or promising radical cures; or to publish cases and operations in the daily prints, or suffer such publications to be made; to invite laymen to be present at operations, to boast of cures and remedies, to adduce certificates of skill and success, or to perform any other similar acts. These are the ordinary practices of empirics, and are highly reprehensible in a regular physician.

§ 4. Equally derogatory to professional character is it for a physician to hold a patent for any surgical instrument or medicine; or to dispense a secret *nostrum*, whether it be the composition or exclusive property of himself or of others. For, if such nostrum be of real efficacy, any concealment regarding it is inconsistent with beneficence and professional liberality; and if mystery alone give it value and importance, such craft implies either disgraceful ignorance or fraudulent avarice. It is also reprehensible for physicians to give certificates attesting the efficacy of patent or secret medicines, or in any way to promote the use of them.

Art. II.—*Professional services of physicians to each other.*

§ 1. All practitioners of medicine, their wives, and their children while under the paternal care, are entitled to the gratuitous services of any one or more of the faculty residing near them, whose assistance may be desired. A physician afflicted with disease is usually an incompetent judge of his own case; and the natural anxiety and solicitude which he experiences at the sickness of a wife, a child, or any one who, by the ties of consanguinity, is rendered peculiarly dear to him, tend to obscure his judgment, and produce timidity and irresolution in his practice. Under such circumstances, medical men are peculiarly dependent upon each other, and kind offices and professional aid should always be cheerfully and gratuitously afforded. Visits ought not, however, to be

obtruded officiously; as such unasked civility may give rise to embarrassment, or interfere with that choice on which confidence depends. But, if a distant member of the faculty, whose circumstances are affluent, request attendance, and an honorarium be offered, it should not be declined; for no pecuniary obligation ought to be imposed, which the party receiving it would wish not to incur.

ART. III.—*Of the duties of physicians as respects vicarious offices.*

§ 1. The affairs of life, the pursuit of health, and the various accidents and contingencies to which a medical man is peculiarly exposed, sometimes require him temporarily to withdraw from his duties to his patients, and to request some of his professional brethren to officiate for him. Compliance with this request is an act of courtesy, which should always be performed with the utmost consideration for the interest and character of the family physician, and when exercised for a short period, all the pecuniary obligations for such service should be awarded to him. But if a member of the profession neglect his business in quest of pleasure and amusement, he cannot be considered as entitled to the advantages of the frequent and long-continued exercise of this fraternal courtesy, without awarding to the physician who officiates the fees arising from the discharge of his professional duties.

In obstetrical and important surgical cases, which give rise to unusual fatigue, anxiety, and responsibility, it is just that the fees accruing therefrom should be awarded to the physician who officiates.

ART. IV.—*Of the duties of physicians in regard to consultations.*

§ 1. A regular medical education furnishes the only presumptive evidence of professional abilities and acquirements, and ought to be the only acknowledged right of an individual to the exercise and honors of his profession. Nevertheless, as in consultations the good of the patient is the sole object in view, and this is often dependent on personal confidence, no intelligent regular practitioner, who has a license to practice from some medical board of known and acknowledged respectability, recognized by this Association, and who is in good moral and professional standing in the place in which he resides, should be fastidiously excluded from fellowship, or his aid refused in consultation, when it is requested by the patient. But no one can be considered as a regular practitioner or a

fit associate in consultation, whose practice is based on an exclusive dogma, to the rejection of the accumulated experience of the profession, and of the aids actually furnished by anatomy, physiology pathology, and organic chemistry.

§ 2. In consultations, no rivalship or jealousy should be indulged; candor, probity, and all due respect should be exercised towards the physician having charge of the case.

§ 3. In consultations, the attending physician should be the first to propose the necessary questions to the sick; after which the consulting physician should have the opportunity to make such further inquiries of the patient as may be necessary to satisfy him of the true character of the case. Both physicians should then retire to a private place for deliberation; and the one first in attendance should communicate the directions agreed upon to the patient or his friends, as well as any opinions which it may be thought proper to express. But no statement or discussion of it should take place before the patient or his friends, except in the presence of all the faculty attending, and by their common consent; and no *opinions* or *prognostications* should be delivered which are not the result of previous deliberation and concurrence.

§ 4. In consultations, the physician in attendance should deliver his opinion first; and when there are several consulting, they should deliver their opinions in the order in which they have been called in. No decision, however, should restrain the attending physician from making such variations in the mode of treatment as any subsequent unexpected change in the character of the case may demand. But such variation, and the reasons for it, ought to be carefully detailed at the next meeting in consultation. The same privilege belongs also to the consulting physician if he is sent for in an emergency, when the regular attendant is out of the way, and similar explanations must be made by him at the next consultation.

§ 5. The utmost punctuality should be observed in the visits of physicians when they are to hold consultation together, and this is generally practicable, for society has been considerate enough to allow the plea of a professional engagement to take precedence of all others, and to be an ample reason for the relinquishment of any present occupation. But, as professional engagements may sometimes interfere, and delay one of the parties, the physician who first arrives should wait for his associate a reasonable period, after which the consultation should be considered as postponed to

a new appointment. If it be the attending physician who is present, he will of course see the patient and prescribe; but if it be the consulting one, he should retire, except in case of emergency, or when he has been called from a considerable distance, in which latter case he may examine the patient, and give his opinion in *writing*, and *under seal*, to be delivered to his associate.

§ 6. In consultations, theoretical discussions should be avoided, as occasioning perplexity and loss of time. For there may be much diversity of opinion concerning speculative points, with perfect agreement in those modes of practice which are founded, not on hypothesis, but on experience and observation.

§ 7. All discussions in consultation should be held as secret and confidential. Neither by words nor manner should any of the parties to a consultation assert or insinuate that any part of the treatment pursued did not receive his assent. The responsibility must be equally divided between the medical attendants—they must equally share the credit of success as well as the blame of failure.

§ 8. Should an irreconcilable diversity of opinion occur when several physicians are called upon to consult together, the opinion of the majority should be considered as decisive; but if the numbers be equal on each side, then the decision should rest with the attending physician. It may, moreover, sometimes happen, that two physicians cannot agree in their views of the nature of a case, and the treatment to be pursued. This is a circumstance much to be deplored, and should always be avoided, if possible, by mutual concessions, as far as they can be justified by a conscientious regard for the dictates of judgment. But in the event of its occurrence, a third physician should, if practicable, be called to act as umpire; and, if circumstances prevent the adoption of this course, it must be left to the patient to select the physician in whom he is most willing to confide. But, as every physician relies upon the rectitude of his judgment, he should, when left in the minority, politely and consistently retire from any further deliberation in the consultation, or participation in the management of the case.

§ 9. As circumstances sometimes occur to render a *special consultation* desirable, when the continued attendance of two physicians might be objectionable to the patient, the member of the faculty whose assistance is required in such cases, should sedulously guard against all future unsolicited attendance. As such consultations

require an extraordinary portion both of time and attention, at least a double honorarium may be reasonably expected.

§ 10. A physician who is called upon to consult, should observe the most honorable and scrupulous regard for the character and standing of the practitioner in attendance; the practice of the latter, if necessary, should be justified as far as it can be, consistently with a conscientious regard for truth, and no hint or insinuation should be thrown out which could impair the confidence reposed in him, or affect his reputation. The consulting physician should also carefully refrain from any of those extraordinary attentions or assiduities, which are too often practised by the dishonest for the base purpose of gaining applause, or ingratiating themselves into the favor of families and individuals.

ART. V.—*Duties of physicians in cases of interference.*

§ 1. Medicine is a liberal profession, and those admitted into its ranks should found their expectations of practice upon the extent of their qualifications, not on intrigue or artifice.

§ 2. A physician in his intercourse with a patient under the care of another practitioner, should observe the strictest caution and reserve. No meddling inquiries should be made—no disingenuous hints given relative to the nature and treatment of his disorder; nor any course of conduct pursued that may directly or indirectly tend to diminish the trust reposed in the physician employed.

§ 3. The same circumspection and reserve should be observed when, from motives of business or friendship, a physician is prompted to visit an individual who is under the direction of another practitioner. Indeed, such visits should be avoided, except under peculiar circumstances; and when they are made, no particular inquiries should be instituted relative to the nature of the disease, or the remedies employed, but the topics of conversation should be as foreign to the case as circumstances will admit.

§ 4. A physician ought not to take charge of or prescribe for a patient who has recently been under the care of another member of the faculty in the same illness, except in cases of sudden emergency, or in consultation with the physician previously in attendance, or when the latter has relinquished the case, or been regularly notified that his services are no longer desired. Under such circumstances, no unjust and illiberal insinuations should be thrown out in relation to the conduct or practice previously pursued,

which should be justified as far as candor and regard for truth and probity will permit; for it often happens that patients become dissatisfied when they do not experience immediate relief, and, as many diseases are naturally protracted, the want of success, in the first stage of treatment, affords no evidence of a lack of professional knowledge and skill.

§ 5. When a physician is called to an urgent case, because the family attendant is not at hand, he ought, unless his assistance in consultation be desired, to resign the care of the patient to the latter immediately on his arrival.

§ 6. It often happens in cases of sudden illness, or of recent accidents and injuries, owing to the alarm and anxiety of friends, that a number of physicians are simultaneously sent for. Under these circumstances, courtesy should assign the patient to the first who arrives, who should select from those present, any additional assistance that he may deem necessary. In all such cases, however, the practitioner who officiates should request the family physician, if there be one, to be called, and, unless his further attendance be requested, should resign the case to the latter on his arrival.

§ 7. When a physician is called to the patient of another practitioner, in consequence of the sickness or absence of the latter, he ought, on the return or recovery of the regular attendant, and with the consent of the patient, to surrender the case.

[The expression, "patient of another practitioner," is understood to mean a patient who may have been under the charge of another practitioner at the time of the attack of sickness, or departure from home of the latter, or who may have called for his attendance during his absence or sickness, or in any other manner given it to be understood that he regarded the said physician as his regular medical attendant.]

§ 8. A physician, when visiting a sick person in the country, may be desired to see a neighboring patient who is under the regular direction of another physician, in consequence of some sudden change or aggravation of symptoms. The conduct to be pursued on such an occasion is to give advice adapted to present circumstances; to interfere no further than is absolutely necessary with the general plan of treatment; to assume no future direction, unless it be expressly desired; and, in this last case, to request an immediate consultation with the practitioner previously employed.

§ 9. A wealthy physician should not give advice *gratis* to the affluent; because his doing so is an injury to his professional

brethren. The office of a physician can never be supported as an exclusively beneficent one; and it is defrauding, in some degree, the common funds for its support, when fees are dispensed which might justly be claimed.

§ 10. When a physician who has been engaged to attend a case of midwifery is absent, and another is sent for, if delivery is accomplished during the attendance of the latter, he is entitled to the fee, but should resign the patient to the practitioner first engaged.

ART. VI.—*Of differences between physicians.*

§ 1. Diversity of opinion and opposition of interest may, in the medical as in other professions, sometimes occasion controversy and even contention. Whenever such cases unfortunately occur, and cannot be immediately terminated, they should be referred to the arbitration of a sufficient number of physicians or a *court-medical.*

§ 2. As peculiar reserve must be maintained by physicians towards the public, in regard to professional matters, and as there exist numerous points in medical ethics and etiquette through which the feelings of medical men may be painfully assailed in their intercourse with each other, and which cannot be understood or appreciated by general society, neither the subject-matter of such differences nor the adjudication of the arbitrators should be made public, as publicity in a case of this nature may be personally injurious to the individuals concerned, and can hardly fail to bring discredit on the faculty.

ART. VII.—*Of pecuniary acknowledgments.*

Some general rules should be adopted by the faculty, in every town or district, relative to *pecuniary acknowledgments* from their patients; and it should be deemed a point of honor to adhere to these rules with as much uniformity as varying circumstances will admit.

OF THE DUTIES OF THE PROFESSION TO THE PUBLIC, AND OF THE OBLIGATIONS OF THE PUBLIC TO THE PROFESSION.

ART. I.—*Duties of the profession to the public.*

§ 1. As good citizens, it is the duty of physicians to be ever vigilant for the welfare of the community, and to bear their part in sustaining its institutions and burdens; they should also be ever ready to give counsel to the public in relation to matters especially

appertaining to their profession, as on subjects of medical police, public hygiene, and legal medicine. It is their province to enlighten the public in regard to quarantine regulations—the location, arrangement, and dietaries of hospitals, asylums, schools, prisons, and similar institutions—in relation to the medical police of towns, as drainage, ventilation, &c.—and in regard to measures for the prevention of epidemic and contagious diseases; and when pestilence prevails, it is their duty to face the danger, and to continue their labors for the alleviation of the suffering, even at the jeopardy of their own lives.

§ 2. Medical men should also be always ready, when called on by the legally constituted authorities, to enlighten coroners' inquests and courts of justice on subjects strictly medical—such as involve questions relating to sanity, legitimacy, murder by poisons or other violent means, and in regard to the various other subjects embraced in the science of Medical Jurisprudence. But in these cases, and especially where they are required to make a *post-mortem* examination, it is just, in consequence of the time, labor, and skill required, and the responsibility and risk they incur, that the public should award them a proper honorarium.

§ 3. There is no profession by the members of which eleemosynary services are more liberally dispensed than the medical, but justice requires that some limits should be placed to the performance of such good offices. Poverty, professional brotherhood, and certain of the public duties referred to in the first section of this article, should always be recognized as presenting valid claims for gratuitous services; but neither institutions endowed by the public or by rich individuals, societies for mutual benefit, for the insurance of lives or for analogous purposes, nor any profession or occupation, can be admitted to possess such privilege. Nor can it be justly expected of physicians to furnish certificates of inability to serve on juries, to perform militia duty, or to testify to the state of health of persons wishing to insure their lives, obtain pensions, or the like, without a pecuniary acknowledgment. But to individuals in indigent circumstances, such professional services should always be cheerfully and freely accorded.

§ 4. It is the duty of physicians, who are frequent witnesses of the enormities committed by quackery, and the injury to health and even destruction of life caused by the use of quack medicines, to enlighten the public on these subjects, to expose the injuries sustained by the unwary from the devices and pretensions of artful

empirics and impostors. Physicians ought to use all the influence which they may possess, as professors in Colleges of Pharmacy, and by exercising their option in regard to the shops to which their prescriptions shall be sent, to discourage druggists and apothecaries from vending quack or secret medicines, or from being in any way engaged in their manufacture and sale.

ART. II.—*Obligations of the public to physicians.*

§ 1. The benefits accruing to the public, directly and indirectly, from the active and unwearied beneficence of the profession, are so numerous and important, that physicians are justly entitled to the utmost consideration and respect from the community. The public ought likewise to entertain a just appreciation of medical qualifications; to make a proper discrimination between true science and the assumptions of ignorance and empiricism—to afford every encouragement and facility for the acquisition of medical education—and no longer to allow the statute-books to exhibit the anomaly of exacting knowledge from physicians, under a liability to heavy penalties, and of making them obnoxious to punishment for resorting to the only means of obtaining it.

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AND

PERMANENT MEMBERS.

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OF THE

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OF THE

AMERICAN MEDICAL ASSOCIATION.

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Bradbury, James C.	*Oldtown.*
Chadwick, George H.	*Portland.*
Chase, Sumner B.	*do.*
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Fessenden, C. S. D.	*Portland.*
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Hutchinson, Charles	*Gray, Cumberland Co.*
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Lincoln, Isaac	*Brunswick.*
†McAlister, Asa	*Ellsworth.*
McKeen, James	*Topsham.*
McRuer, D.	*Bangor.*
Millet, Charles	*Lewiston, Androscoggin Co.*
Monroe, Hollis	*Belfast.*
Monroe, N. P.	*do.*
Nourse, Amos	*Bath.*
Oakes, Sylvester	*Auburn.*
Page, A. F.	*Hancock.*
Page, H. N.	*Penobscot.*
Palmer, G. S.	*Gardner.*
Stockbridge, T. G.	*Bath.*
Swan, Chas. E.	*Calais.*
Tewksbury, Samuel H.	*Portland.*
Weston, J. C.	*Bangor.*

NEW HAMPSHIRE.

Abbott, James B.	*Sanbornton.*
Bancroft, J. P.	*Concord.*
†Bartlett, Josiah	*Stratham.*
Bartlett, Ezra	*Exeter.*
Batchelder, Daniel H.	*Fitzwilliam.*
Batcheller, James	*do.*
Boyden, F.	*Hinsdale.*
†Brown, Thomas	*Manchester.*
Buck, W. D.	*do.*
Carr, Alonzo F.	*Goffstown.*
Carr, John	*Sanbornton.*
Carter, Ezra	*Concord.*
Chase, Charles	*Deerfield.*
Conant, David S.	*Burlington.*
Crosby, Dixi	*Hanover.*
Crosby, George A.	*Manchester.*
Crosby, Josiah	*do.*
Crosby, T. R.	*Hanover.*
Cummings, Silas	*Fitzwilliam.*
Currie, T. H.	*Enfield.*
Danforth, James	*New Boston.*
Davis, E. H.	*Manchester.*
Dickey, Abraham O.	*Lyme.*
Eastman, Josiah C.	*Hamstead.*
Eaton, Harrison	*Merrimack.*
Fernald, John S.	*Barrington.*
Fitch, Francis P.	*Amherst.*
Gage, Charles P.	*Concord.*
Gove, George S.	*Whitefield.*
Graves, Josiah G.	*Nashville.*
Hamilton, Cyrus B.	*Lyme.*
Haynes, Timothy	*Concord.*
Hill, Levi G.	*Dover.*
Hubbard, G. H.	*Manchester.*
Hubbard, Oliver P.	*Hanover.*
Jarvis, Samuel G.	*Claremont.*
Kelley, S. B.	*Franklin.*
Marshall, Thomas H.	*Mason Village.*
Martin, Noah	*Dover.*

Miller, Luke	*Fitzwilliam.*
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Pearce, H.	*Winchester.*
Peaslee, Edmund R.	*Hanover.*
Prescott, William	*Concord.*
Richardson, Samuel A.	*Marlboro'.*
†Sanborn, Nathan	*Henniker.*
Sanborn, Thomas	*New Port.*
Sargent, J. F.	*Concord.*
Shackford, Chas. H.	*Somersworth.*
Smalley, Adoniram	*Lyme, Grafton Co.*
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Smith, Joseph H.	*Dover.*
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Spaulding, Edward	*Nashua.*
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Stone, W. P.	*Danbury.*
Swett, John L.	*Newport.*
Thayer, W. H.	*Keene.*
†Twitchell, Amos	*do.*
Twitchell, Geo. B.	*do.*
Webster, E. K.	*Boscawen.*
Whittemore, J. P.	*Chester.*
†Woodbury, Peter P.	*Bedford.*

VERMONT.

Allen, C. L.	*Middlebury.*
Babcock, M. N.	*Fairfield.*
Bass, Zaccheus	*Middlebury.*
Campbell, Daniel	*Saxton's River.*
Carpenter, W.	*Burlington.*
Carr, Ezra T.	*Castleton.*
Chandler, Charles B.	*Montpelier.*
Chapin, Wm. A.	*Ludlow.*
Clark, C.	*Montpelier.*
Conant, D. S.	*Burlington.*
Converse, Shubael	*Norwich.*
Cushman, Earl	*Orwell.*
Dana, A. G.	*Brandon.*
Downes, Charles S.	*Topsham.*
Drew, O. W.	*Waterbury.*

Emmons, Lewis	*Hartland.*
Fasset, Oscar F.	*E. Berkshire.*
†Hall, Charles	*Burlington.*
Hatch, Horace	*do.*
Higginson, Francis J.	*Brattleboro'.*
Hinckley, I.	*Thetford.*
Holton, H. D.	*Putney.*
Huntington, W. M.	
James, Henry	*Waterbury.*
Jewett, Calvin	*St. Johnsbury.*
Ketchum, Benjamin F.	*Brattleboro'.*
Knight, E. A.	*Springfield.*
Knowles, Nathan H.	*Bristol.*
M'Collom, Wm.	*Woodstock.*
Newell, Selim	*Lyndon.*
Niles, H. H.	*Post Mills.*
Perkins, Joseph	*Castleton.*
Phelps, Edward E.	*Windsor.*
Pineo, P.	*Queechy.*
Pitkin, A. S.	*Burlington.*
Pittman, N. J.	*Brattleboro'.*
†Ranney, W. R.	*Townshend.*
Rockwell, W. H.	*Brattleboro'.*
Sanborn, E. K.	*Rutland.*
Simons, L. E.	*Saxton's River.*
Smith, Orrin	*Montpelier.*
Spalding, James	*do.*
Stiles, J. N.	*Strafford.*
Stiles, Joseph N.	*Windsor.*
Story, Dyer	*West Windsor.*
Thayer, S. W.	*Burlington.*
Washburn, Cyrus	*Vernon.*
Whiting, Laurin G.	*Chester.*
Woodward, A. J.	*Castleton.*
Woodward, Adrian T.	*do.*
Worcester, E. C.	*Thetford.*

MASSACHUSETTS.

Abbe, Alanson	*Boston.*
Abbe, E. B.	*do.*
Abbott, Samuel L.	*do.*

Adams, Horace W.	*Boston.*
Adams, Horatio	*Waltham.*
Adams, Nathan	*Springfield.*
†Adams, Z. Boylston	*Boston.*
Agassiz, Louis	*Cambridge.*
Ainsworth, F. S.	*Boston.*
Alden, Ebenezer	*Randolph.*
Allen, Nathan	*Lowell.*
Alley, J. B.	*Boston.*
Atwood, George	*Fair Haven.*
Ayer, James	*Boston.*
Babbitt, Nathan S.	*Allens.*
Bacon, jr., John	*Boston.*
Bancroft, Amos B.	*Groton.*
Bartlett, George	*Boston.*
Bartlett, Josiah	*Concord.*
Bartlett, Lyman	*New Bedford.*
Barton, Edw.	*Orange.*
†Batcheller, Stephen	*Royalston.*
Bates, Joseph N.	*Worcester.*
Bell, Artemus	*S. Hampton.*
Bell, Cyrus	*Feeding Hills.*
Bell, Luther V.	*Charlestown.*
Bemis, David	*Chickopee.*
Bemis, Jonathan W.	*Charlestown.*
Bethune, George A.	*Boston.*
Bigelow, George F.	*do.*
Bigelow, Henry J.	*do.*
Bigelow, Jacob	*do.*
Blake, E. W.	*do.*
Blake, Jeremiah	*Lowell.*
Blake, J. E.	*Boston.*
Blodgett, Julius	*West Brookfield.*
Bonney, Franklin	*Hadley.*
Borland, J. Nelson	*Boston.*
Boutelle, Thomas R.	*Fitchburg.*
Bowditch, Henry J.	*Boston.*
Bowen, E.	*Barnstable.*
Bridgeman, William	*Springfield.*
Bronson, J. R.	*Attleboro'.*
Brown, Buckminster	*Boston.*

Brown, Jonathan	*Tewksbury.*
Brown, Orlando	*Wrentham.*
Brown-Séquard, C. E.	*Cambridge.*
†Buck, Ephraim	*Boston.*
Buckingham, Charles E.	*do.*
Burnap, S. B.	*Holliston.*
Burnap, S. G.	*do.*
Burnham, Z. P.	*Lowell.*
Cabot, jr., Samuel	*Boston.*
Carpenter, E. W.	*Chatham.*
Carpenter, H.	*Upton.*
Carpenter, Nelson	*Warren.*
Chaffee, C. C.	*Springfield.*
Chamberlain, C. N.	*North Hampton.*
Channing, Walter	*Boston.*
Chapin, Alonzo	*Winchester.*
Chapman, T. L.	*Long Meadow.*
Childs, H. H.	*Pittsfield.*
Childs, Timothy	*do.*
Choate, George	*Salem.*
Clark, Edward H.	*Boston.*
Clark, Henry G.	*do.*
Clark, Rowse R.	*Whitinsville.*
Clarke, Alpheus B.	*Holyoke.*
Clarke, Henry	*Worcester.*
Clarke, Moses	*East Cambridge.*
Coale, William E.	*Boston.*
Cogswell, George	*Bradford.*
Coit, Daniel T.	*Boston.*
Collins, Clarkson T.	*Great Barrington, Berkshire Co.*
Colony, George D.	*Fitchburg.*
Comstock, W. W.	*Middleboro'.*
Cornell, W. M.	*Boston.*
Cornish, Aaron	*Falmouth.*
Cotting, B. E.	*Roxbury.*
Cowles, Henry	*Saxonville.*
Cox, jr., Benjamin	*Salem.*
Crane, Phineas M.	*East Boston.*
Cross, Enoch	*Newburyport.*
Cummings, W. H.	*Williamstown.*
Curtis, Josiah	*Boston.*

Curtis, Josiah	*Lowell.*
Cutter, Benjamin	*Woburn.*
†Cutter, Nehemiah	*Pepperell.*
Dale, William J.	*Boston.*
Dalton, Jno. C.	*Lowell.*
Damon, Howard F.	*Boston.*
Davis, C. A.	*Chelsea.*
Davis, R. T.	*Fall River.*
Dearborne, A. D.	*Upper Falls, Newton.*
Deniston, E. E.	*North Hampton.*
Derby, Hasket	*Boston.*
Dickey, Hanover	*Lowell.*
Dix, John H.	*Boston.*
Doggott, Perez F.	*Wareham.*
Dunlap, James	*Northampton.*
Eames, Ambrose N.	*Wrentham.*
Eastman, E. T.	*Boston.*
Edwards, N. B.	*New Chemsford.*
Ellis, Calvin	*Boston.*
Fabyan, George	*do.*
Farnum, jr., J.	*Salem.*
Fay, Allen C.	*Milford.*
Fay, Charles	*Charlton.*
Fearing, Elisha P.	*Nantucket.*
Ferry, Henry	*Dalton.*
Field, C. C.	*Leominster.*
Fisk, Calvin P.	*Fiskdale.*
Fisk, D. S.	*East Brookfield.*
Fisk, Samuel A.	*Northampton.*
Flint, Edward	*Leicester, Worcester Co.*
Flint, John	*Boston.*
Fogg, David S.	*Dedham.*
Forsyth, James B.	*Chelsea.*
French, Jno. O.	*Hanover.*
Gardner, Johnson	*Pawtucket.*
Garland, G. W.	*Lawrence.*
Garratt, Alfred C.	*Boston.*
Gay, George H.	*do.*
Gillman, B. F.	*Nantucket.*
Godding, Alvah	*Winchendon.*
Gordon, Charles	*Boston.*

Gordon, Timothy	*Plymouth.*
Gordon, William A.	*New Bedford.*
Gould, Augustus A.	*Boston.*
Graves, John W.	*Chelsea.*
Green, John	*Boston.*
Green, John	*Worcester.*
Green, John O.	*Lowell.*
Greene, Francis C.	*E. Hampton.*
Greene, Wm. Warren	*Pittsfield.*
Greer, Robert	*Boston.*
Guiteau, Coridon	*Lee.*
†Hale, Enoch	*Boston.*
Hall, Adino B.	*do.*
Harpur, John	*Sandwich.*
Harris, Jonas C.	*West Cambridge.*
Haskell, Benjamin	*Rockport.*
Hayden, Jno. C.	*Boston.*
Hayward, George	*do.*
Hayward, jr., George	*do.*
Heywood, B. F.	*Worcester, Worcester Co.*
Hitchcock, Alfred	*Fitchburg, Worcester Co.*
Hodgdon, Richard L.	*West Cambridge.*
Holmes, Christopher C.	*Milton, Norfolk Co.*
Holmes, Oliver W.	*Boston.*
Homans, C. D.	*do.*
Homans, John	*do.*
Hooker, Anson	*Cambridge.*
Hooker, Anson P.	*do.*
Hooper, Foster	*Fall River.*
Hooper, R. W.	*Boston.*
Hoovey, Daniel	*Greenfield, Franklin Co.*
Hoskins, Thomas H.	*Boston.*
Hosmer, Hiram	*Watertown.*
Howe, Appleton	*South Weymouth, Norfolk Co.*
Howe, Charles	*Raynham.*
†Howe, Zadoc	*Billerica.*
Hoyt, Enos	*Framingham.*
Huntingdon, Elisha	*Lowell.*
Hurd, Samuel H.	*Charlestown.*
Huse, Stephen	*Methuen.*
Inches, H. B.	*Boston.*

Ingalls, William	*Winchester.*
Jackson, Charles J.	*Boston.*
Jackson, James	*do.*
Jackson, J. B. S.	*do.*
Jackson, Woburn	*do.*
Jarvis, Edward	*Dorchester.*
Jarvis, John J.	*Boston.*
Jeffries, B. Joy	*do.*
Jeffries, John	*do.*
Jennings, Selden	*Richmond.*
Jewett, H. A.	*Northboro'.*
Jewett, Jeremiah P.	*Lowell.*
Keep, N. C.	*Boston.*
Kendall, Pierson T.	*Clinton.*
Kendall, P. S.	*Worcester.*
Kimball, Gilman	*Lowell.*
Kittridge, Theodore	*Waltham.*
Lambert, Alfred	*Springfield.*
Lamb, W. D.	*Lawrence.*
Leland, F.	*Milford.*
Leonard, Jonathan	*Sandwich.*
Leonard, M. B.	*East Boston.*
Lewis, Winslow	*Boston.*
Levell, Ephraim	*West Boylston.*
Livingston, Alfred	*Lowell.*
Lovejoy, Oliver S.	*Haverhill.*
Lyman, George H.	*Boston.*
Lynde, James P.	*Worcester.*
Mack, William	*Salem.*
Mackie, Andrew	*New Bedford.*
Mansfield, J. D.	*South Reading.*
Marshall, Jonas A.	*Fitchburg.*
Marsh, Lebbeus E.	*Granby.*
Martin, Oramel	*Worcester.*
Martin, S. P.	*New Braintree.*
Mason, Augustus	*Brighton.*
Metcalf, John George	*Mendon.*
Miller, Alfred	*Fitchburg.*
Miller, E. D.	*Dorchester.*
Minot, Francis	*Boston.*
Monroe, A. Le B.	*Medway.*

Moore, E. B.	*Boston.*
Moriarty, Jno. M.	*do.*
Morland, William W.	*do.*
Morrill, Samuel	*do.*
Morse, James R.	*Cambridge.*
†Mowe, Daniel	*Lowell.*
Norcross, Josiah	*South Reading.*
Noyes, Josiah	*Needham P. O.*
Nye, James M.	*Lynn.*
Odin, jr., John	*Boston.*
Oliver, Fitch E.	*do.*
Orcutt, Almon M.	*Hardwick.*
Osgood, Jonathan W. D.	*Greenfield.*
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Otis, jr., George A.	*do.*
Page, Calvin G.	*Boston.*
Page, W. H.	*do.*
Palmer, E. D. G.	*do.*
Parker, Hiram	*Lowell.*
†Parkman, George	*Boston.*
†Parkman, Samuel	*do.*
Parks, jr., Luther	*do.*
Patch, F. F.	*do.*
Peck, Wm. D.	*Sterling.*
Perkins, Edward A.	*Tyngsborough.*
Perkins, Henry C.	*Newburyport.*
Perkins, John P.	*Great Barrington.*
†Perry, M. S.	*Boston.*
Phelps, Thaddeus	*Attleborough.*
Pierce, John	*Edgartown.*
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Pierson, E. B.	*do.*
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Pillsbury, Harlin H.	*Medford.*
†Pillsbury, John D.	*Lowell.*
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Poole, Alexander	*Dennis.*
Porter, jr., Joshua N.	*N. Brookfield.*
Pratt, Calvin B.	*Bridgewater.*
Pratt, Jefferson	*Hopkinton.*
Puffer, Chenery	*Shelburne Falls.*

Reynolds, Edward	*Boston.*
Reynolds, Joseph	*Gloucester.*
Richardson, Horace	*Boston.*
Robbins, James W.	*Uxbridge.*
Rook, O. S.	*Pittsfield.*
Root, Martin	*Byfield.*
Russell, Ira	*Nantick.*
Russell, Le Baron	*Boston.*
Sabin, Henry L.	*Williamstown.*
Salisbury, Stephen	*Brookline.*
Salter, Richard H.	*Boston.*
Sargent, Joseph	*Worcester.*
Sargent, H.	*do.*
Sargent, Seneca	*Lawrence.*
Savory, Charles A.	*Lowell.*
Seymour, Levi Dwight	*Greenfield.*
Shattuck, jr., George C.	*Boston.*
Shattuck, W.	*do.*
Shurtleff, Augustine	*Brookline.*
Shurtleff, Nathaniel B.	*Boston.*
Sinclair, A. D.	*do.*
Smith, David P.	*Springfield.*
†Smith, James M.	*do.*
Smith, Jerome C.	*Somerville.*
Smith, J. V. C.	*Boston.*
Snow, A. B.	*do.*
Southwick, M. D.	*Milville.*
Spalding, Joel	*Lowell.*
Spaulding, Miles	*Dunstable.*
Spaulding, Miles	*Groton.*
Spooner, John P.	*Dorchester.*
Spooner, Paul	*New Bedford.*
Sprague, Francis P.	*Boston.*
Sprague, Seth L.	*do.*
Stedman, Charles H.	*do.*
Stetson, James A.	*Quincy.*
Stevens, Francis J.	*Haverhill.*
Stevens, William F.	*Stoneham.*
Stickney, Chas. D.	*New Bedford.*
Stimpson, Jeremy	*Dedham.*
Stone, Eben	*Walpole.*

Stone, James W.	*Boston.*
Stone, Joseph	*Hardwick.*
Stone, Henry O.	*Boston.*
Storer, D. Humphreys	*do.*
Storer, Horatio R.	*do.*
Strattan, Elijah	*Northfield.*
Sullivan, jr., John L.	*Malden.*
Taylor, Ashmun H.	*Shelburne Falls.*
Taylor, John B.	*Cambridge.*
Taylor, jr., Nathaniel W.	*Springfield.*
Thaxter, Duncan M. B.	*Boston.*
Thomas, A.	*Cambridge.*
Thomas, A. T.	*Boston.*
Thompson, James	*Northampton.*
Thomson, George N.	*Boston.*
Thomson, Horatio	*Belchertown.*
Thorndike, William	*Beverly.*
Townsend, S. D.	*Boston.*
Tracy, Stephen	*Andover.*
Tripp, Benjamin H.	*Rutland.*
Trow, W. M.	*Williamsburg.*
Upham, J. Baxter	*Boston.*
Wakefield, H. P.	*Reading.*
Wales, Bradford L.	*Randolph.*
Ward, George A.	*Holyoke.*
Ware, Charles E.	*Boston.*
Ware, John	*do.*
Ware, Jonathan	*Milton.*
Warren, George A.	*Hopkinton.*
†Warren, John C.	*Boston.*
Warren, J. Mason	*do.*
Warren, jr., J. W.	*do.*
†Wellington, T.	*West Cambridge.*
Wheeler, W. G.	*Chelsea.*
Wheatland, R. H.	*Salem.*
Whitcomb, Charles W.	*Barre.*
White, Vassal	*Curtisville P. O., Stockbridge.*
Whiting, Aug.	*Charlestown.*
Whiting, Joseph B.	*Lee.*
Whitney, Simon	*Framingham.*
†Whitridge, W. C.	*New Bedford.*

Wilde, James	*Duxbury.*
†Wilder, Charles W.	*Leominster.*
Wiley, Adams	*Roxbury.*
Willard, H.	*Boston.*
Williams, Henry W.	*do.*
†Williams, Stephen W.	*Deerfield.*
Willis, Isaac P.	*Royalston.*
Willis, John	*Brinfield.*
Witter, John	*Hampden.*
Woorland, William W.	*Boston.*
Workman, William	*Worcester, Worcester Co.*
York, Jaspar H.	*Boston.*

RHODE ISLAND.

†Allen, Hiram	*Woonsocket.*
Arnold, S. Augustus	*Providence.*
Baker, George P.	*Providence.*
Ballou, Ariel	*Woonsocket.*
Batchelder, D. Homer	*Cranston.*
Brown, W. Owen	*Providence.*
†Brownell, Richmond	*do.*
Bullock, Otis	*Warren.*
Capron, George	*Providence.*
Clapp, Sylvanus	*Pawtucket.*
†Cleveland, H.	*New Providence.*
†Clifford, Lewis W.	*Providence.*
Collins, George L.	*do.*
Dunn, Theophilus C.	*Newport.*
Eldridge, J. H.	*East Greenwich.*
†Ellis, J. James	*Bristol.*
Ely, James W. C.	*Providence.*
Fisher, C. H.	*North Scituate.*
†Fowler, Ezekiel	*Woonsocket Falls.*
Gardner, Johnson	*Providence.*
Kenyon, Job	*do.*
King, David	*Newport.*
Le Prohon, E. P.	*Providence.*
Mauran, Joseph	*do.*
Miller, Lewis L.	*do.*
Newell, Timothy	*do.*

Newhall, Thomas K.	*Providence.*
Parsons, Charles W.	*do.*
Parsons, Usher	*do.*
Peckham, F. H.	*do.*
Pierce, G. A.	*do.*
Pratt, H. P.	*do.*
Rivers, H. W.	*do.*
Snow, Ed. M.	*do.*
†Warren, J. E.	*Cumberland.*

CONNECTICUT.

Baker, Rufus	*Middletown.*
Barnes, Julius S.	*Southington.*
Barrows, Ashbel W.	*Hartford.*
†Beach, Samuel	*Bridgeport.*
Beardsley, Lucius N.	*Milford.*
Beardsley, Sheldon	*North Branford.*
Beckwith, Josiah G.	*Litchfield.*
Bennett, Ezra P.	*Danbury.*
Bennett, Hanford N.	*Bridgeport.*
Beresford, S. B.	*Hartford.*
Bishop, E. H.	*New Haven.*
Blackman, G.	*Westport.*
Blakeman, Rufus	*Fairfield.*
Bostwick, D. E.	*Litchfield.*
†Bowen, Samuel	*Thompson.*
Bradford, Milton	*West Woodstock.*
Brigham, Norman	*North Mansfield.*
Brinley, E. H.	*Hartford.*
Bronson, Henry	*New Haven.*
Brown, Jas.	*Waterbury.*
Brownell, Clarence M.	*East Hartford.*
Brownell, William R.	*Hartford.*
Budington, George E.	*New Haven.*
Buell, Henry W.	*Litchfield.*
Burke, George W.	*Middletown.*
Burr, David S.	*Westport.*
Burr, Horace	*Middlesex Co.*
Butler, John S.	*Hartford.*
Campbell, Harvey	*Voluntown.*
Canfield, Joel	*Guilford.*

†Carrington, Edwin W.	*Farmington.*
Castle, Andrew	*Woodbridge.*
Catlin, Benjamin H.	*West Meriden.*
Catlin, Samuel	*Watertown.*
Childs, Seth	*East Hartford.*
Clark, William N.	*Stafford.*
Clary, George	*Hartford.*
Cogswell, William H.	*Plainfield.*
Comings, B. N.	*New Britain.*
Comstock, Jos.	*Lebanon.*
Crary, David	*Hartford.*
Daggett, David L.	*New Haven.*
De Forest, Wm. B.	*do.*
Deming, Ralph	*Sharon.*
Dickinson, Francis L.	*Willington.*
†Downes, John K.	*New Haven.*
Downing, Eleazer B.	*Preston.*
Fowler, Remus M.	*Washington.*
Francis, D. P.	*New London.*
Gilbert, G. C. H.	*Portland.*
Gillette, H. C.	*South Windsor.*
Goodrich, Alfred R.	*Vernon.*
Gourdin, Samuel	*New Haven.*
Griggs, O. B.	*Mansfield.*
Haile, Ashbel B.	*Norwich.*
†Hall, Eli	*East Hartford.*
Hammond, Justin	*Daysville.*
†Harrison, David	*Middletown.*
Hastings, Panet M.	*Hartford.*
†Hatch, Johnson C.	*Kent.*
Hawley, George B.	*Hartford.*
Hawley, Roswell	*Bristol.*
Hazen, Miner C.	*Haddam.*
Hill, Edwin A.	*East Killingly.*
†Hooker, Charles	*New Haven.*
Hooker, Worthington	*do.*
Hubbard, Dennison H.	*Clinton.*
Hubbard, Robert	*Bridgeport.*
Hubbard, Stephen G.	*New Haven.*
Hunt, Ebenezer	*Hartford.*
Hutchins, Samuel	*West Killingly.*

Hutchinson, Ira	*Cromwell.*
Huxley, A. M.	*Goshen.*
Ives, Charles L.	*New Haven.*
†Ives, Eli	*do.*
Ives, Levi	*do.*
Ives, Nathan B.	*do.*
Jarvis, George O.	*Portland.*
Jewitt, Pliny A.	*New Haven.*
Knight, Henry M.	*Salisbury.*
†Knight, Jonathan	*do.*
Leavenworth, Melinus C.	*Waterbury.*
Lewis, J. B.	*Vernon.*
Lindsley, Charles A.	*New Haven.*
†Lyman, Norman	*Warren.*
Manwaring, R. A.	*New London.*
Matthews, H. W. E.	*New Haven.*
Matthewson, Rufus W.	*Durham.*
McGregor, John	*Thompson, Windham Co.*
†Middlebrook, Elijah	*Trumbull.*
Miller, Gaylord B.	*Harwinton.*
Moody, G. A.	*Plainville.*
Nicoll, John	*New Haven.*
North, B. B.	*Cornwall.*
Noyes, Samuel S.	*New Canaan.*
Nye, Elisha B.	*Middletown.*
Paddock, Lewis S.	*Norwich.*
Palmer, George E.	*Stonington.*
Park, Edwin A.	*New Haven.*
Phelps, J. W.	*Wolcotville.*
†Pierson, William S.	*Windsor.*
†Pike, Nathan S.	*Sterling Hill.*
Platt, Gideon L.	*Waterbury.*
Porter, Isaac G.	*New London.*
Prenderson, Samuel	*New Haven.*
Preston, S. C.	*Hartford.*
Richardson, Wm. H.	*Mansfield.*
Rockwell, P. G.	*Waterbury.*
†Rogers, Benjamin	*Hartford.*
Russell, Gerdon W.	*do.*
Salisbury, Samuel T.	*Plymouth.*
Sanford, Leonard J.	*New Haven.*

Seymour, George	*Litchfield.*
Silliman, jr., Benjamin	*New Haven.*
Shove, Harmon W.	*Woodbury.*
Skinner, Alden	*Rockville.*
St. John, Gamaliel H.	*Merwinsville.*
Stillman, Roswell F.	*North Haven.*
†Sumner, George	*Hartford.*
Sumner, George O.	*New Haven.*
Talcott, Alvan	*Guilford.*
Totten, Thomas H.	*New Haven.*
Townsend, T. B.	*do.*
Turner, Sylvester W.	*Chester.*
Tyler, David A.	*New Haven.*
Warner, Abner S.	*Hartford.*
†Warner, Richard	*Cromwell.*
†Webb, Reynold	*Madison.*
†Welch, Archibald	*Hartford.*
Welch, Benjamin	*Lakeville.*
Welch, James	*Winchester.*
Welch, James	*Winstead.*
Welch, William W.	*Norfolk.*
Welsh, John H.	*do.*
White, Moses C.	*New Haven.*
White, Roderick A.	*Simsbury.*
Wilcox, J. D.	*West Granby.*
Wilcox, Lucian S.	*Hartford.*
Williams, A. L.	*Brookfield.*
Williams, Lewis	*Pomfret.*
†Wilson, Myron W.	*Hartford.*
†Witter, William	*Willimantic.*
Wood, William	*East Windsor Hill.*
Woodruff, William	*Plymouth.*
Woodward, Ashbel	*Franklin.*
Woodward, Charles	*Middletown.*
Worthington, Albert B.	*Middle Haddam.*
Wright, Albert A.	*Canaan.*

NEW YORK.

Acosta, E.	*New York.*
Adams, Hiram	*Fabius.*
Adams, John G.	*New York.*

Agnew, Cornelius R.	*New York.*
Aigner, Godfrey	*do.*
Alba, E. M.	*Angelica, Alleghany Co.*
Allen, R. L.	*Saratoga Springs.*
Allen, Lucius A.	*Owego, Tioga Co.*
Allen, Lucius H.	*Owego.*
Allin, Charles M.	*Flushing, L. I.*
Anderson, James	*New York.*
Anderson, W. C.	*Stapleton.*
Armsby, James H.	*Albany.*
Armstrong, E. W.	*Rochester.*
Arnold, E. S. F.	*Yonkers.*
Atwater, D. F.	*Brooklyn.*
Austin, James M.	*Waterford.*
Ayres, Daniel	*Brooklyn.*
Ayres, Daniel	*Amsterdam.*
Babcock, Charles	*New Hartford, Oneida Co.*
Babcock, M. N.	*Saratoga Springs.*
Bache, B. F.	*Brooklyn.*
Bacon, Charles G.	*Fulton.*
Baker, jr., A.	*Norwich.*
Ball, John	*Brooklyn.*
Banks, James L.	*New York.*
Barker, B. Fordyce	*do.*
Barnett, C. V.	*Windham Centre, Greene Co.*
Barrett, S.	*Le Roy.*
Barrows, Charles	*Clinton.*
Bartlett, Homer L.	*Flatbush.*
Batchelder, J. P.	*New York.*
Bauer, Louis	*Brooklyn.*
Bay, William	*Albany.*
Baxter, Hiram	*Stillwater, Saratoga Co.*
Beadle, Edward L.	*Poughkeepsie.*
Beardsley, Edward L.	*do.*
Beardsley, Levi	*Oneida.*
Beardsley, W. H.	*Coventry.*
Beattie, Joseph	*Geneva.*
†Beck, T. Romeyn	*Albany.*
Beebe, Seneca	*McDonough, Chenango Co.*
Beecher, H. H.	*North Norwich.*
Bell, A. Nelson	*Brooklyn.*

Benton, John B.	*Spencer.*
Bibbins, W. B.	*New York.*
Bissell, D. P.	*Utica.*
†Blair, Arba	*Rome.*
Blakeman, William N.	*New York.*
Blatchford, Thomas W.	*Troy.*
Blawis, Reuben	*Fort Miller.*
Blumenthal, Mark	*New York.*
Bly, Douglas	*Rochester.*
Bolton, Jackson	*New York.*
Bontecou, R. B.	*Troy.*
Borrowe, J. H.	*New York.*
Bradford, George W.	*Homer, Cortland Co.*
Brady, John A.	*Brooklyn.*
Briggs, W. H.	*Rochester.*
Brinsmade, Thomas C.	*Troy.*
Bronson, John O.	*New York.*
Brooks, Daniel	*Brooklyn.*
Brooks, P. B.	*Binghampton, Broome Co.*
Brown, H. W.	*New York.*
Brown, James L.	*do.*
Brownell, Russ B.	*do.*
Brush, H. Mortimer	*do.*
Buck, Gurdon	*do.*
Budd, A. E.	*Medford, Burlington Co.*
Budd, Charles A.	*New York.*
Budlong, Caleb	*Frankford, Herkimer Co.*
Buell, Richard M.	*Brooklyn.*
Buel, William P.	*New York.*
Bulkley, Henry D.	*do.*
Burge, J. H. Hobart	*Brooklyn.*
†Burton, C. V. W.	*Lansingburg.*
†Burwell, Bryant	*Buffalo.*
Burwell, George N.	*do.*
Byrne, J.	*Brooklyn.*
Calkins, Alonzo	*New York.*
†Cammann, G. P.	*do.*
Carmalt, W. H.	*do.*
†Carr, Edson	*Canandaigua, Ontario Co.*
Carrington, Henry A.	*Lansingburgh.*
Cary, Walter	*Buffalo.*

Carter, Galen	*New York.*
Case, Jonathan H.	*Albany.*
Casey, James E.	*Mohawk.*
Casey, W. B.	*New York.*
†Cash, Merrit H.	*Ridgebury, Orange Co.*
Chamberlayne, J. K.	*Cazenovia.*
Chapman, E. N.	*Brooklyn.*
Cheeney, E. W.	*Canandaigua.*
†Cheeseman, Jno. C.	*New York.*
Child, T.	*do.*
Chubbuck, H. S.	*Elmira, Chenango Co.*
Church, W. Henry	*New York.*
Clark, Alonzo	*do.*
Clarke, A. Bryant	*Brooklyn.*
Clements, James W. G.	*do.*
Cleveland, J. M.	*Utica.*
Clymer, Meredith	*New York.*
Cobb, J. V.	*Rome.*
Cock, Thomas	*New York.*
Cock, Thomas F.	*do.*
Cockcroft, James	*do.*
Coe, A. B.	*Oswego.*
Colt, E. N.	*Brooklyn.*
Colt, John	*Batavia.*
Colvin, Darwin	*Clyde, Wayne Co.*
Conant, D. S.	*New York.*
Cone, Robert C.	*Lowville.*
Congar, Horace M.	*Buffalo.*
Connolly, James J.	*New York.*
Cook, Simon A.	*Buskirk's Bridge.*
Cooper, James S.	*New York.*
Corliss, Hiram	*Greenwich, Washington Co.*
Corson, J. W.	*New York.*
Corson, J.	*do.*
Cotes, John	*Batavia.*
Cotes, L. B.	*do.*
Coventry, C. B.	*Utica.*
Crafts, E. G.	*Binghamton.*
Crandall, R. O.	*Owego.*
Crandell, C. M.	*Belfast, Alleghany Co.*
Crane, James	*Brooklyn.*

Crane, Joseph S.	*New York.*
Crispell, Abm.	*Rondout.*
Crittenden, A. G.	*Clifton Springs, Ontario Co.*
Curry, James Hart	*Shrub Oak, West Co.*
Dallas, Alex. J.	*Camillus, Onondaga Co.*
Dalton, J. C.	*New York.*
Dana, Samuel W.	*do.*
Daniels, E.	*Union, Broome Co.*
Davis, E. H.	*New York.*
Davis, Henry G.	*do.*
Dean, H. W.	*Rochester.*
Delafield, Edward	*New York.*
Delano, B. L.	*Lockport.*
Deming, J. P. H.	*Palmyra.*
Dering, Nicoll H.	*Utica.*
Detmold, W.	*New York.*
Didama, Henry P.	*Syracuse.*
Dodge, D. A.	*Brooklyn.*
Donaghe, William R.	*New York.*
Donoughue, D. O.	*Bergen, Genesee Co.*
Doolittle, A. F.	*Herkimer.*
Douglas, Isaac H.	*Utica.*
Douglas, J. Hancock	*New York.*
Downs, Henry S.	*do.*
Drake, Benjamin	*do.*
Draper, John W.	*do.*
Dubois, Abram	*do.*
Dudley, Wm. H.	*Brooklyn.*
Dunlap, James P.	*Syracuse.*
†Dwight, W. C.	*Moscow, Livingston Co.*
†Dwight, William W.	*New York.*
Dwyer, John	*do.*
Earle, Pliny	*do.*
Eastman, M. H.	*Owego.*
Eliot, Ellsworth	*New York.*
Elliot, jr., Geo. T.	*do.*
Elsberg, Louis	*do.*
Ely, W. W.	*Rochester.*
Emmet, Thomas Addis	*New York.*
Enos, Dewitt C.	*Brooklyn.*
Farnham, Horace B.	*New York.*

Farrington, J. O.	*New York.*
Ferguson, James	*Glenn's Falls, Warren Co.*
Ferguson, Jno. T.	*New York.*
Fisher, George J.	*Sing Sing.*
Finnell, Thomas C.	*New York.*
Fitch, Almiron	*Delhi, Delaware Co.*
Flint, Austin	*New York.*
Flint, jr., Austin	*do.*
Folsom, Levi	*do.*
Ford, Corydon L.	*Lockport.*
Foster, Joel	*New York.*
Foster, S. Conant	*do.*
Fox, Eli	*Germanflatts, Herkimer Co.*
†Francis, John W.	*New York.*
Frankel, Julius	*do.*
Freeman, Norman K.	*West Farms, West Chester Co.*
French, S. H.	*Lisle, Broome Co.*
Furman, Guido	*New York.*
Gardner, Augustus K.	*do.*
Garrish, J. P.	*do.*
Gay, C. C. F.	*Buffalo.*
Gaylord, L. Merriman	*Sodus.*
Gilfillan, Wm.	*Brooklyn.*
Gilman, Chandler R.	*New York.*
Glück, Isidore	*do.*
Gomez, Horatio	*do.*
Goodsell, Thomas	*Utica.*
Goodyear, Miles	*Cortland.*
Gould, William	*Buffalo.*
Govan, Wm.	*North Haverstraw.*
Gray, Henry C.	*North White Creek.*
Green, David	*New York.*
Green, Horace	*do.*
Green, Tobias J.	*Parrish, Oswego Co.*
Green, Caleb	*Homer, Cortland Co.*
†Greene, Isaac	*New York.*
Greene, John W.	*do.*
Griscom, John H.	*do.*
Guleke, Hermann	*do.*
Guthrie, C. B.	*do.*
Hadley, George	*Buffalo.*

Haight, C. W.	*Pleasantville.*
Hall, Edward	*State Lunatic Asylum, Auburn.*
Halstad, T. M.	*New York.*
Hamilton, Frank H.	*do.*
Hard, P. H.	*Oswego.*
Harrington, S. H.	*Chenango Forks.*
Harris, Elisha	*New York.*
Hart, John	*do.*
Hart, Samuel	*Brooklyn.*
Harvey, Charles W.	*Buffalo.*
Harvey, Leon F.	*do.*
†Hawley, Joel E.	*Ithaca.*
Henderson, F. B.	*Whitesboro'.*
Hendrick, H. C.	*McGrawville.*
Henry, James H.	*Brooklyn.*
Henschel, Charles	*New York.*
Henrigues, A. J.	*do.*
Heywood, C. F.	*do.*
Hinton, John H.	*do.*
Hodgson, G. W.	*White Plains, West Chester Co.*
Holcomb, William Frederick	*New York.*
Homberger, Julius	*do.*
Hovey, B. L.	*Dansville.*
Hubbard, Samuel T.	*New York.*
Hubbard, Silas	*Buffalo.*
Hun, Thomas	*Albany.*
Hunt, Sandford B.	*Buffalo.*
Husted, Nathaniel C.	*New York.*
Hutchison, J. C.	*Brooklyn.*
Hyde, Frederick	*Cortlandville.*
Hyde, Lucius	*Brooklyn.*
Ingraham, T. M.	*Flatbush.*
Jackson, Thomas	*Binghampton.*
Jackson, William H.	*New York.*
Jacobi, Abraham	*do.*
Jacobs, Ferris	*Delhi, Delaware Co.*
Janes, Edward H.	*New York.*
Jenkins, J. Foster	*Yonkers.*
Jerome, James H.	*Trumansburg.*
Jewett, C.	*Buffalo.*
Jewett, Harvey	*Canandaigua.*

Jewitt, C. Enos	*Brooklyn.*
†Jones, Daniel T.	*Baldwinsville.*
Jones, E. Lee	*New York.*
Jones, Joseph B.	*Brooklyn.*
Keene, Stephen S.	*New York.*
Keese, Hobart	*do.*
Kennedy, James	*do.*
Kiernan, James L.	*do.*
Kissam, Daniel E.	*Brooklyn.*
†Kissam, R. S.	*New York.*
Kneeland, Jonathan	*Onondaga.*
Krackowizer, Ernest	*New York.*
Lansing, John V.	*Albany.*
Laudon, D. S.	*Brooklyn.*
Lawrence, Jonathan S.	*New York.*
Lea, Isaac	*Stapleton.*
Leaning, John K.	*Otsego.*
Lee, Charles A.	*Peekskill, West Chester Co.*
Lee, James	*Mechanicsville, Saratoga Co.*
Linsly, Jared	*New York.*
Little, G. S.	*Kirkwood.*
Little, James L.	*New York.*
Lockwood, T. T.	*Buffalo.*
Loines, J. P.	*New York.*
Long, Alfred J.	*Whitehall, Washington Co.*
Loomis, Alfred Lee	*New York.*
Lyman, E. S.	*Sherburne, Chenango Co.*
Lynch, John	*New York.*
Lyon, Irving W.	*do.*
MacFarlan, Ebenezer	*do.*
†Manly, James R.	*do.*
Manly, James	*Brooklyn.*
March, Alden	*Albany.*
March, M. M.	*Manlius.*
Markoe, T. M.	*New York.*
Mason, Theo. L.	*Brooklyn.*
Mason, V. W.	*Canastown, Madison Co.*
Mason, W. H.	*Buffalo.*
McCall, John	*Utica.*
McEwen, John B.	*New York.*
†McIntyre, A.	*Palmyra.*

McKay, Lawrence	*Rochester.*
McMillan, Charles	*Fordham.*
McNaughton, James	*Albany.*
†McNevin, Wm. H.	*New York.*
McNulty, John	*do.*
McPhail, L. C.	*Brooklyn.*
Mercer, Alfred	*Syracuse.*
Merritt, J. King	*New York.*
Metcalfe, John T.	*do.*
†Miller, John	*do.*
Miner, Julius F.	*Buffalo.*
†Miner, William	*New York.*
Minor, James M.	*Brooklyn.*
Mitchell, L. C.	*do.*
†Mitchell, Henry	*Norwich.*
Mixer, S. F.	*Buffalo.*
Moe, Erastus C.	*Groton.*
Monell, Joseph A.	*New York.*
Moore, Edw. M.	*Rochester.*
Morrell, Joseph S.	*Glen Cove, L. I.*
Morris, Moreau	*New York.*
Morris, Philip V. N.	*Buskirk's Bridge.*
Morris, R. L.	*New York.*
Mott, Valentine	*do.*
Mott, Walter	*Schuylerville, Saratoga Co.*
Moulton, Peter	*New Rochelle, Westchester Co.*
Neuhaus, Charles	*Brooklyn.*
Newman, James M.	*Buffalo.*
Nichell, H.	*do.*
Nivison, Nelson	*Hector.*
North, N. Elsan L.	*Brooklyn.*
Noyes, Henry D.	*New York.*
Odell, Evander	*Madilla, Otsego Co.*
Ogden, Benjamin	*New York.*
Ordronaux, John	*do.*
Ormiston, Robert	*Brooklyn.*
Orton, John G.	*Binghampton.*
Otterson, Andrew	*Brooklyn.*
Palmer, J. W.	*Victor, Ontario Co.*
Parker, Willard	*New York.*
Parker, Edward H.	*Poughkeepsie.*

Parkhurst, W. H. H.	*Frankfort.*
Parmley, Eleazer	*New York.*
†Pattison, Granville S.	*do.*
Peaslee, Edward R.	*do.*
Pelton, Lucius F.	*Mt. Kisco, West Chester Co.*
Percy, Samuel R.	*New York.*
Peters, George A.	*do.*
Phelps, E. B.	*Owego.*
Phelps, James L.	*New York.*
Philips, S. B.	*do.*
Pierce, J. B.	*Lyons.*
Pomeroy, Charles G.	*Newark, Wayne Co.*
Pond, James O.	*New York.*
Pope, H. H.	*Rome.*
Porter, Henry N.	*New York Mills, Oneida Co.*
Porter, Mortimer G.	*New York.*
Post, Alfred C.	*do.*
Potter, U.	*Minden, Montgomery Co.*
Punnett, John	*New York.*
Purdy J.	*Elmira, Chemung Co.*
Purdy, Samuel A.	*New York.*
Purple, S. S.	*do.*
Quackenbush, J. V. P.	*Albany.*
Ramsay, Cyrus	*New York.*
Raphael, Benjamin J.	*do.*
Raymond, Charles H.	*do.*
Reed, A. D.	*Cincinnatus, Courtland Co.*
†Reese, D. Meredith	*New York.*
Reese, William W.	*Brooklyn.*
Reid, Jno.	*Rochester.*
Reid, Wm. W.	*do.*
Reynolds, Tabor B.	*Wilton, Saratoga Co.*
Reynolds, J. H.	*do.*
Rhoades, Sumner	*Ithaca, Tompkins Co.*
Richards, J. W.	*New York.*
Rochester, Thomas F.	*Buffalo.*
Rockwell, Wm.	*New York.*
Rogers, Alexander W.	*do.*
Rogers, D. L.	*New Rochelle.*
†Rogers, J. Kearney,	*New York.*
Root, Franklin W.	*Hamilton, Madison Co.*

Russ, J. D.	*New York.*
Russell, Wm.	*Utica, Oneida Co.*
Sands, D. Jerome	*Rye.*
Sands, Henry B.	*New York.*
Saunders, A. L.	*Brookfield, Madison Co.*
Sayre, Lewis A.	*New York.*
Schilling, E.	*do.*
Selden, J. C.	*do.*
Shanks, John	*do.*
Shelton, John D.	*Jamaica.*
Shipman, Azariah B.	*Syracuse.*
Shove, Seth	*Katonah.*
Shrady, George F.	*New York.*
Shumway, Samuel	*Essex.*
Sims, J. M.	*New York.*
†Skilton, Avery J.	*Troy.*
Smith, Albert	*New Rochelle.*
Smith, Charles D.	*New York.*
Smith, G. M.	*do.*
Smith, Hanbury	*do.*
Smith, Horatio S.	*Brooklyn.*
Smith, Jerome Candee	*New York.*
Smith, J. Lewis	*do.*
Smith, Joseph M.	*do.*
Smith, Joseph T.	*Canandaigua.*
Smith, Stephen	*New York.*
Smith, Whiting	*Whitesboro'.*
Snow, Simeon	*Root, Montgomery Co.*
Snyder, Morgan	*Fort Plain.*
Speir, S. Fleet	*Brooklyn.*
Sprague, J. S.	*Exeter, Otsego Co.*
Sprague, L. S.	*Williamson.*
Squibb, Edward R.	*Brooklyn.*
Staats, Barent P.	*Albany.*
Stanchfield, J. K.	*Elmira.*
†Sterns, John	*New York.*
Stephenson, Marcus P.	*do.*
Stephenson, Mark	*do.*
Stevens, Alexander H.	*do.*
Stevens, L.	*Constantia, Orange Co.*
Stewart, F. Campbell	*New York.*

Stewart James	*New York.*
Stewart, Philander	*Peekskill.*
St. John, Samuel	*New York.*
Stirling, Thomas B.	*do.*
Storck, Edward	*Buffalo.*
Stout, Arthur B.	*New York.*
Stone, John O.	*do.*
Stoube, Fred.	*do.*
Strew, William W.	*do.*
Sturtevant, James M.	*Rome.*
Suckley, George	*New York.*
Sullivan, Richard J. O.	*do.*
Swaine, Chas. H.	*Cortlandville.*
Swinburne, John	*Albany.*
†Swett, John A.	*New York.*
†Taft, Marcus L.	*do.*
Taylor, Isaac E.	*do.*
Taylor, Wm.	*Manlius.*
Tefft, Lake I.	*Onondaga.*
Tellkampf, Theo. A.	*New York.*
Thomas, Daniel G.	*Utica.*
Thomson, Wm. H.	*New York.*
Thompson, jr., A. G.	*do.*
Thompson, A. H.	*Walden.*
Thompson, Alexander	*Aurora, Cayuga Co.*
Thorn, James	*Troy.*
Tobie, E.	*Erie Co.*
Townsend, Howard	*Albany.*
Townsend, James C.	*Glen Cove.*
Townsend, Morris W.	*Bergen.*
Townsend, Wm. P.	*Goshen, Orange Co.*
Trask, James D.	*Astoria.*
Trask, J. D.	*White Plains.*
Tredwell, Samuel	*North Hempstead,*
Trenor, jr., Jno.	*New York.*
Turner, Thomas	*Flatbush.*
Tuttle, John T.	*New York.*
Underhill, Alfred	*do.*
Van Buren, Peter	*do.*
Van Buren, W. H.	*do.*
Vanderpool, S. O.	*Albany.*

Vandervoort, John L.	*New York.*
Van Dyck, Andrew	*Oswego.*
Van Hovenberg, J. O.	*Kingston.*
Van Kleek, John R.	*New York.*
Van Pelt, M. D.	*do.*
Van Rensselaer, Alexander	*do.*
Voorhies, Wm.	*Lisle, Broome Co.*
Voss, Lothar	*New York.*
Wade, T. A.	*Brooklyn.*
Walser, Theodore	*Tompkinsville, Richmond Co.*
Warner, Everardus B.	*New York.*
Warren, James	*do.*
†Watson, John	*do.*
Watts, Robert	*do.*
Way, W. C.	*Elmira.*
Webb, Edwin	*Hempstead, L. I.*
Weber, Leonard	*New York.*
Weed, Samuel	*Clyde, Wayne Co.*
Weeks, Cyrus	*New York.*
West M. Calvin	*Rome.*
†West, S.	*Binghampton, Broome Co.*
Whaley, James S.	*Rome, Oneida Co.*
Wheeler, Lewis C.	*Troy.*
Whitaker, I.	*Buffalo.*
Whitbeck, John F.	*Rochester.*
White, Devillo	*Sherburne, Chenango Co.*
White, James P.	*Buffalo.*
White, Oliver	*New York.*
White, S. P.	*do.*
Whittelsey, Henry N.	*do.*
Wilbur, H. B.	*Syracuse.*
Wilbur, L. F.	*Honeoye, Ontario Co.*
†Wilcox, Charles H.	*Buffalo.*
Willard, Augustus	*Green, Chenango Co.*
Willard, Sylvester D.	*Albany.*
Williams, William H.	*Brooklyn.*
Wilson, A. Duncan	*do.*
Winton, Nelson	*Havana.*
†Wing, Joel A.	*Albany.*
Wolcott, S. G.	*Utica.*
Wood, Isaac	*New York.*

Wood, James R.	*New York.*
Woodhull, H. W. B.	*do.*
Woodward, G.	*do.*
Worster, Joseph	*do.*
Wotkyns, Alfred	*Troy.*
Wyckoff, C. C.	*Buffalo.*
Zabriskie, J. L.	*Flatbush.*

NEW JERSEY.

Arrowsmith, J. E.	*Keyport, Monmouth Co.*
Baldwin, Henry R.	*New Brunswick.*
Bateman, Eli E.	*Fairton.*
Bateman, Ephraim	*Cedarville.*
Bateman, B. Rush	*do.*
Blane, John	*Perryville.*
Boileau, Nathaniel B.	*Everittstown.*
Boucher, J. H.	*Newark.*
Brakeley, P. F.	*Belvidere, Warren Co.*
Butcher, Charles	*Maurice Town, Cumberland Co.*
Canfield, J. W.	*Morristown.*
Chabert, Romeo F.	*Hoboken.*
Chetwood, G. R.	*Elizabethtown.*
Clark, C. F.	*Woodbury.*
Clark, H. C.	*do.*
Clarke, J. Henry	*Newark.*
†Cole, N. W.	*Burlington.*
Coles, Abram	*Newark.*
Coleman, J. B.	*Trenton.*
Coleman, J. P.	*Pemberton.*
†Condict, Lewis	*Morristown.*
Conover, Robert R.	*Red Bank.*
Cook, Chas.	*Jersey City.*
Cooke, John	*Englishtown.*
Cooper, Richard M.	*Camden.*
Corson, T. J.	*Trenton.*
Corwin, J. Albert	*Newark.*
Craig, J. W.	*Plainfield.*
Cramer, I. S.	*Sergeantsville, Hunterdon Co.*
Cullen, Thomas F.	*Camden.*
Dayton, A. B.	*Middletown Point.*
Dean, Richard C.	*Camden.*

Disbrow, S. M.	*Howell.*
Dougherty, Alexander N.	*Newark.*
Elmer, William	*Bridgeton.*
English, J. S.	*Manalapan.*
Fitch, George D.	*Hope, Warren Co.*
Fithian, Enoch	*Greenwich.*
Fithian, Joseph	*Woodbury.*
Garrison, Charles	*Swedesboro'.*
Garrison, J. F.	*do.*
Gibbon, Quinton	*Salem.*
Goodell, George	*Plattsburg.*
Grant, Gabriel	*Newark.*
Gray, Alfred	*Flemington.*
Haines, Job	*Burlington.*
Hampton, Isaac H.	*Bridgeton.*
Hendry, Charles D.	*Camden Co.*
Hunt, E. M.	*Metuchen.*
Hunt, T. Edgar	*Clarksville.*
Janeway, J. H.	*Princeton.*
Jobs, Eugene	*Springfield.*
Johnson, John C.	*Blairstown.*
Longstreet, H. H.	*Bordentown.*
Marsh, Elias J.	*Patterson.*
Martin, S. K.	*Martinsville.*
Moore, C. V.	*Stillwater.*
Morford, A. D.	*Newton.*
Mulford, Isaac L.	*Camden.*
†Munn, J. B.	*Chatham, Morris Co.*
Nichols, Whitfield	*Newark.*
Oakley, L. W.	*Elizabeth City.*
Page, R. H.	*Columbus.*
Phillips, John H.	*Pennington.*
Pennington, Samuel H.	*Newark.*
Pierson, W.	*Orange.*
Pierson, jr., Wm.	*do.*
Porter, E. M.	*Bridgeton.*
Rogers, Alexander W.	*Patterson.*
Read, Zachariah	*Mount Holly.*
Ribble, W. B.	*Millstone.*
Ryerson, Thomas	*Newton.*
Saunders, Thomas J.	*Woodbury.*

Sayre, David M.	*Sparta.*
Schenck, F. S.	*Camden.*
Schenck, J. V.	*do.*
Schively, George S.	*Mount Holly.*
Sickler, J. R.	*Carpenter's Land.*
Smith, Henry	*Neshanic.*
Smith, Lyndon A.	*Newark.*
Southard, Lott	*do.*
Stratton, B. H.	*Mount Holly.*
Stuart, J. R.	*Newton.*
Taylor, Edward	*Middletown.*
Taylor, Othniel H.	*Camden.*
Thomason, T. J.	*Perrineville.*
Thompson, Jno.	*Hoboken.*
Varick, Theodore R.	*Jersey City.*
Whittingham, Edward T.	*Milburn.*
Wickes, Stephen	*Orange.*
Woodhull, Addison W.	*Newark.*
Woodruff, A. D.	*Haddonfield.*

PENNSYLVANIA.

Allen, Ezra P.	*Athens.*
Allen, J. M.	*Philadelphia.*
Andrews, James P.	*Lancaster.*
Ash, H. St. Clair	*Philadelphia.*
Ashmead, William	*do.*
Atkinson, William B.	*do.*
Atlee, Washington L.	*do.*
Atlee, John L.	*Lancaster.*
†Bache, Franklin	*Philadelphia.*
Bache, T. H.	*do.*
Baker, Charles L.	*Lancaster.*
Bare, A. S.	*do.*
Barrington, Samuel	*Philadelphia.*
†Baskin, George W.	*Mercer.*
Beaver, D. Llewellyn	*Reading.*
Bell, John	*Philadelphia.*
Bertolet, P. G.	*Olney.*
Betton, Thomas F.	*Germantown.*
†Bibighaus, C. H.	*Philadelphia.*
Biddle, John B.	*do.*

Bird, J. F.	*Philadelphia.*
Blair, A. R.	*York.*
Blakeslee, A. C.	*Dimocks.*
Boker, Charles S.	*Philadelphia.*
†Bond, Henry	*do.*
Breitenbach, J.	*Myerstown.*
Bridges, Robert	*Philadelphia.*
Brinton, John B.	*Westchester.*
Brinton, Bernard	*Philadelphia.*
Brown, H. J.	*do.*
Bruce, S. D.	*Pittsburg.*
Bryan, Joseph R.	*Philadelphia.*
Bryan, James	*do.*
Burden, Jesse R.	*do.*
†Burrowes, Francis S.	*Lancaster.*
Butler, S. W.	*Philadelphia.*
Carpenter, Henry	*Lancaster.*
Carpenter, James S.	*Pottsville.*
Carson, Joseph	*Philadelphia.*
Carson, William	*do.*
Cassidy, P.	*Lancaster.*
†Chapman, Nathaniel	*Philadelphia.*
Clark, David D.	*do.*
Coates, B. Horner	*do.*
Cohen, J. Solis	*do.*
Collins, B. M.	*Doylestown.*
Condie, D. Francis	*Philadelphia.*
Confer, J. M.	*Fasteria.*
Conrey, Jno.	*Manayunk.*
Corse, James M.	*Philadelphia.*
Corson, Hiram	*Plymouth Meeting, Mont. Co.*
Corson, W.	*Norristown.*
Cummiskey, James	*Philadelphia.*
Cunningham, Oliver	*Beaver.*
Curtis, Levi	*Philadelphia.*
Da Costa, J. M.	*do.*
†Darlington, William	*Westchester.*
Dickson, Samuel H.	*Philadelphia.*
Dillard, T.	*do.*
Dilworth, Samuel	*Pittsburg.*
Dorsey, J. H.	*Huntington.*

†Drayton, H. E.	*Philadelphia.*
†Duffield, Samuel	*Lancaster.*
Duncan, Robert	*do.*
Dunglison, Robley	*Philadelphia.*
Dyer, Ezra	*do.*
Dyer, Jno.	*Danborough.*
Edge, J. P.	*Downingtown.*
Ehler, J. Augustus	*Lancaster.*
Ellmaker, Thomas	*do.*
Ely, Edward	*New Hope, Bucks Co.*
Emanuel, M.	*Marcus Hook.*
Emerson, Gouverneur	*Philadelphia.*
Emlen, J. V.	*do.*
Eshleman, J. K.	*Lancaster Co.*
Everitt, E. A.	*Burlington, Bradford Co.*
Fay, John	*Williamsburg.*
Findley, W. R.	*Altoona.*
Fish, Augustine H.	*Philadelphia.*
Foulke, J. L.	*Gwynedd, Montgomery Co.*
Fox, George	*Philadelphia.*
Fronefield, Charles	*Montgomery Co.*
†Gallaher, W.	*Philadelphia.*
Gaston, A. K.	*Brandywine Manor, Chester Co.*
Gazzam, Joseph P.	*Pittsburg.*
Gebhard, Lewis P.	*Philadelphia.*
Gemmill, J. N.	*Altoona.*
Gerhard, Wm. W.	*Philadelphia.*
Gibson, William	*do.*
Gilbert, David	*do.*
Given, R. A.	*do.*
Gobrecht, Wm. H.	*do.*
Goddard, P. B.	*do.*
Gordon, Wm. H.	*do.*
†Grant, William R.	*do.*
Green, James M.	*do.*
Green, Traill	*Easton.*
†Gries, William	*Reading.*
Gross, Samuel D.	*Philadelphia.*
Gryder, M. R.	*Chestnut Level, Lancaster Co.*
Guilford, Wm.	*Lebanon.*
Haines, William S.	*Philadelphia.*

Halberstadt, George	*Pottsville.*
†Hallowell, Edward	*Philadelphia.*
Halsey, Calvin C.	*Montrose.*
Halsey, W. S.	*Philadelphia.*
†Handy, J. H.	*do.*
Harrison, F. C.	*Bloomsburg.*
Harry, Samuel H.	*Doe Run, Chester Co.*
Hart, Alexander C.	*Philadelphia.*
Hartshorne, Edward	*do.*
Hartshorne, Henry	*do.*
Hatfield, N. L.	*do.*
Hays, Isaac	*do.*
Heger, Anthony	*Pottsville.*
†Heister, J. P.	*Reading.*
Herbst, William	*do.*
Hewson, Addinell	*Philadelphia.*
Hiester, Frank M.	*Reading.*
Hinkle, Franklin	*Marietta.*
Hodge, Hugh L.	*Philadelphia.*
Hollingsworth, S. L.	*do.*
Holmes, Daniel	*East Smithfield.*
Horner, G. R. B.	*Philadelphia.*
†Horner, William E.	*do.*
Horton, George F.	*Terrytown.*
†Humes, Samuel	*Lancaster.*
Hunter, C. H.	*Reading.*
Hunt, William	*Philadelphia.*
†Huston, Robert M.	*do.*
Hutchinson, James H.	*do.*
Innes, Charles	*Easton.*
Irwin, John S.	*Pittsburg.*
Jackson, R. M. J.	*Cresson.*
Jackson, Samuel (Prof.)	*Philadelphia.*
Jackson, Samuel	*do.*
James, Charles	*Easton.*
James, O. P.	*Doylestown.*
James, R. E.	*Stonechurch.*
†Janney, Benjamin S.	*Philadelphia.*
Jewell, Wilson	*do.*
Keating, William V.	*do.*
Keith, William	*do.*

Keneagy, Samuel	*Strasburg, Lancaster Co.*
Kennedy, Alfred L.	*Philadelphia.*
Kerr, James W.	*York, York Co.*
†Kerfoot, George B.	*Lancaster.*
King, Charles R.	*Philadelphia.*
†Klapp, William H.	*do.*
Knight, Wm. L.	*do.*
Knox, Wm. Morrow	*Baumstown.*
Koehler, J. G.	*Schuylkill Haven.*
†Lajus, D. Paul	*Philadelphia.*
Lamb, Jno. F.	*Frankford.*
†Lang, Edmund	*Philadelphia.*
La Roche, C. Percy	*do.*
La Roche, Rene	*do.*
†Leib, Henry F.	*do.*
Leidy, Joseph	*do.*
Levick, James J.	*do.*
Levis, M. M.	*do.*
Lewis, Samuel	*do.*
Linderman, R. J.	*Doylestown.*
Littell, S.	*Philadelphia.*
Lowman, Jno.	*Johnstown, Cambria Co.*
Luden, J. B.	*Huntingdon.*
Ludlow, J. L.	*Philadelphia.*
Madison, R. L.	*do.*
Mahon, O. S.	*Columbia.*
Martin, Charles H.	*Allentown.*
Martin, J. A.	*Whitemarsh.*
Mason, E. H.	*Towanda.*
†Mathews, Charles H.	*Doylestown.*
Mayburry, William	*Philadelphia.*
McClellan, J. H. B.	*do.*
McClurg, J. R.	*Chandlerville.*
McCorkle, W. S.	*Columbia.*
McCoy, G. R.	*Doylestown.*
McCoy, John M.	*Bellefonte.*
McCulloch, John	*Huntingdon.*
McIlvain, William	*York.*
Meigs, Charles D.	*Philadelphia.*
Meigs, J. Aitken	*do.*
†Mitchell, John K.	*do.*

Mitchell, Thomas D.	*Philadelphia.*
Moore, John Wilson	*do.*
Morris, Casper	*do.*
Morris, J. Cheston	*do.*
†Morton, Samuel George	*do.*
Morton, Thomas George	*do.*
Morton, C. J.	*Springfield.*
Mosser, D. O.	*Breinyville.*
Mowry, Robert B.	*Alleghany City.*
Muhlenburg, F. H.	*Lancaster.*
Muhlenburg, Henry E.	*do.*
Murphy, Andrews	*Parkesburg, Chester Co.*
†Mütter, Thomas D.	*Philadelphia.*
†Naudain, Arnold	*do.*
Nebinger, Andrew	*do.*
Neill, John	*do.*
Newberry, Milton	*Whitemarsh.*
Norris, George W.	*Philadelphia.*
†Ogier, S. A.	*Frazer, Chester Co.*
Orlady, H.	*Petersburg, Huntingdon Co.*
Osler, O.	*Philadelphia.*
Packard, John H.	*do.*
Page, William Byrd	*do.*
Palmer, Henry	*York.*
Pancoast, Joseph	*Philadelphia.*
Parker, Samuel	*East Hempfield, Lancaster Co.*
†Parrish, Isaac	*Philadelphia.*
Parrish, Joseph	*Media.*
Parry, Ely	*Lancaster.*
†Patterson, Henry S.	*Philadelphia.*
†Patterson, George W.	*do.*
Paul, J. Rodman	*do.*
†Pennypacker, I. A.	*do.*
†Pepper, William	*do.*
Phister, jr., Benjamin	*do.*
Piper, W. A.	*do.*
Pollock, A. M.	*Pittsburg.*
Powell, F. W.	*Philadelphia.*
Price, Jacob	*West Chester.*
†Randolph, Jacob	*Philadelphia.*
Raub, J. K	*Quarryville.*

Ream, John	*Lancaster.*
Reese, J. J.	*Philadelphia.*
†Remington, Isaac	*do.*
Richards, C. O.	*Lancaster.*
†Richardson, B.	*Montrose.*
Richardson, David D.	*Philadelphia.*
Richardson, T.	*Brooklyn.*
Richardson, W. L.	*Nesquehoning, Carbon Co.*
Richie, Robert W.	*Philadelphia.*
Rieser, Frank	*Reading.*
Rivinus, Edward F.	*Westchester.*
Rodman, Lewis	*Philadelphia.*
†Rogers, James B.	*do.*
Rogers, R. E.	*do.*
Rohrer, B.	*Columbia.*
Ross, J. D.	*Williamsburg.*
Rothrock, Abm.	*Mc Veytown.*
Ruschenberger, W. S. W.	*Philadelphia.*
Sargent, jr., Winthrop	*West Philadelphia.*
Schrack, Jno.	*Shannonville.*
Seip, Amos	*Easton.*
Sheller, Adam	*Mt. Joy, Lancaster Co.*
Shelmerdine, R. Q.	*Philadelphia.*
Schneck, B. F.	*Lebanon, Lancaster Co.*
Scholfield, Edwin	*Philadelphia.*
Shoemaker, Charles	*Jenkintown.*
Sholl, E. R.	*Reading.*
Slocum, A. M.	*Philadelphia.*
Smaltz, J. Henry	*do.*
Smith, jr., Francis G.	*do.*
Smith, H. H.	*do.*
Smith, H. Yale	*do.*
Smith, Latham A.	*New Milford.*
†Smith, Moses B.	*Philadelphia.*
Smith, R. K.	*do.*
†Spencer, Thomas D.	*do.*
Spooner, Edward A.	*do.*
Stanton, David	*New Brighton, Beaver Co.*
Steward, Scott	*Philadelphia.*
†Stewart, J. D.	*do.*
Stewardson, Thomas	*do.*

Stiles, R. Cresson	*Westchester.*
Stillé, Alfred	*Philadelphia.*
†Stillé, Moreton	*do.*
Stocker, A. E.	*do.*
Strawbridge, James D.	*Danville.*
Stroud, Wm. D.	*Philadelphia.*
Stubbs, J. B.	*Rock P. O., Lancaster Co.*
†Swayne, Caleb	*London Grove.*
Swift, Edward	*Easton.*
Thomas, John R.	*Wayne Co.*
†Thomas, George W.	*Norristown.*
Thomas, Isaac	*Westchester.*
†Thomas, R. P.	*Philadelphia.*
Thomason, W. D.	*Harrisburg.*
Thompson, Benjamin	*Westchester.*
Thompson, Sidney	*Spruce Creek, Huntingdon Co.*
Thompson, William S.	*Lancaster.*
Todd, J. E.	*Philadelphia.*
Townsend, R. H.	*do.*
Townsend, W. W.	*Chatham.*
Treichler, S. K.	*Jonestown.*
Troth, S. N.	*Philadelphia.*
Turnbull, Laurence	*do.*
Uhler, John	*do.*
Vanbuskirk, Wm. A.	*Pottstown, Montgomery Co.*
Wadsworth, Henry	*Philadelphia.*
Walker, Isaac R.	*Spread Eagle, Chester Co.*
Wallace, Edward	*Reading.*
Wallace, Ellerslie	*Philadelphia.*
Watson, William H.	*Bedford.*
Weidler, Isaac C.	*Leacock P. O., Lancaster Co.*
West, Francis	*Philadelphia.*
Wilcox, Alexander	*do.*
Wiley, Penrose	*Leesport.*
Wilson, William J.	*Potter's Mill, Centre Co.*
Wilson, Elwood	*Philadelphia.*
†Wiltbank, John	*do.*
Wimley, G. W.	*Limerick Township, Mont. Co.*
Wister, Caspar	*Philadelphia.*
Wood, George B.	*do.*
Wood, Thomas	*Muncy, Lycoming Co.*

Worthington, Wilmer	*Westchester.*
†Yardley, Thomas H.	*Philadelphia.*
Zeigler, George J.	*do.*
Zeigler, J. L.	*Mount Joy P. O., Lancaster Co.*
Zulick, S. M.	*Orwigsburg.*

DELAWARE.

Askew, Henry F.	*Wilmington.*
†Baker, George R.	*do.*
Bullock, W. R.	*do.*
Bush, Lewis P.	*do.*
Clark, R. H.	*Milford.*
Clawson, James Emory	*Smyrna.*
Couper, James	*New Castle.*
Cummings, William	*Smyrna.*
Dailey, E. D.	*do.*
Grimshaw, A. H.	*Wilmington.*
Hamilton, Wm. N.	*Cantwell's Bridge.*
Hirons, R. S. W.	*Smyrna.*
Johnson, R. P.	*Wilmington.*
Jones, W.	*Vernon.*
Jump, Isaac	*Dover.*
Merrit, John	*Middletown.*
Mitchell, J. R.	*Milford.*
Morris, William W.	*Dover.*
†Perkins, John D.	*Smyrna.*
Porter, Robert R.	*Wilmington.*
Rogers, T. C.	*do.*
Saulsbury, G.	*Dover.*
†Smith, Thomas Mackie	*Brandywine.*
Thomson, James W.	*Wilmington.*
Wales, J. P.	*Brandywine.*
Wilson, James F.	*Wilmington.*

MARYLAND.

†Alexander, Ashton	*Baltimore.*
Armitage, James	*do.*
Atkinson, Thomas C.	*do.*
†Baer, M. S.	*do.*
†Baker, Alfred	*do.*

Baldwin, E. C.	*Baltimore.*
Baltzell, W. H.	*do.*
Baxley, Willis H.	*do.*
Belt, W. F.	*Prince George.*
Bolton, James	*Baltimore.*
Bond, Thomas E.	*Falston.*
Bordley, James	*Baltimore.*
Boyd, Charles	*Frederick City.*
†Briscoe, John H.	*Baltimore.*
Buckler, Thomas H.	*do.*
Chamberlaine, J. E. M.	*Easton.*
Chew, Samuel	*Baltimore.*
Clarke, S. R.	*do.*
Cohen, Joshua J.	*do.*
Coleman, James S.	*do.*
Cox, C. C.	*do.*
Crane, W. B.	*do.*
Dallam, William M.	*Hartford Co.*
Davis, William H.	*Baltimore.*
Dawson, James	*St. Michael's, Talbot Co.*
Donaldson, Francis	*Baltimore.*
†Dorsey, Lloyd	*Frederick.*
Dulin, Alexander F.	*Baltimore.*
Dunbar, John R. W.	*do.*
Duvall, E. P.	*do.*
Duvall, W.	*Washington, Montgomery Co.*
Field, Philip S.	*Baltimore.*
Fonerden, John	*do.*
†Frick, Charles	*do.*
Gibson, George S.	*do.*
Gibson, J. Grigg	*Fredericktown.*
Gilman, J.	*Baltimore.*
Goldsborough, H. T.	*Easton, Talbot Co.*
Grieves, H. G.	*Cambridge.*
Gunn, John P.	*Baltimore.*
†Handy, Samuel K.	*Princess Anne.*
Hardcastle, E. M.	*Trappe.*
†Harris, Chapin A.	*Baltimore.*
Hebb, T. W.	*Mount Olive.*
Heintze, F. E. B.	*Baltimore.*
Hemsley, W.	*Caroline Co.*

Hopkins, Joel	*Elkridge Landing, Howard Co.*
Houck, J. W.	*Baltimore.*
Inloes, H. A.	*do.*
†Jameson, sen., Horatio G.	*do.*
†Jenkins, Solomon M.	*Easton.*
Johnstone, C.	*Baltimore.*
Kemp, W. M.	*do.*
Kennard, T. C.	*Harmony.*
Kennedy, S. D.	*Baltimore.*
Kinneman, P. S.	*do.*
Kinney, jr., William	*do.*
Lawrence, G. W.	*Catonsville.*
Leonard, William T.	*Baltimore.*
Macgill, C.	*Hagerstown.*
McKew, D. I.	*do.*
Mahon, O. S.	*Baltimore.*
Martin, Thomas W.	*Dorchester Co.*
Matthews, Thomas	*Milestown.*
Miltenberger, G. W.	*Baltimore.*
Monkur, John C. S.	*do.*
Monmonier, J. F.	*do.*
Morgan, G. E.	*do.*
Murray, R. (U.S.A.)	*do.*
Muse, J. A.	*Cambridge.*
O'Donnel, D. A.	*Baltimore.*
Piggott, A. S.	*do.*
Pinckney, Ninian (U.S. N.)	*Annapolis.*
†Power, William	*Baltimore.*
Riley, William	*do.*
Roberts, George C. M.	*do.*
Robinson, Alexander C.	*do.*
†Roby, Joseph	*do.*
Sappington, J. K.	*Havre-de-Grace.*
Sappington, Thomas	*Liberty, Frederick Co.*
Simpson, J.	*Baltimore.*
Smith, Nathan R.	*do.*
Smith, Samuel P.	*Cumberland.*
Steiner, L. H.	*Baltimore.*
Steuart, R. S.	*do.*
Stevenson, J. S.	*do.*
Stokes, William H.	*do.*

†Teackle, John N.	*Baltimore.*
†Theobald, Elisha W.	*do.*
†Thomas, Richard H.	*do.*
†Tyler, Samuel	*Frederick City.*
Ward, J. Robert	*Baltimore.*
Warfield, Jesse L.	*Westminster, Carroll Co.*
Warren, Edward	*Baltimore.*
Webster, John Lee	*do.*
White, A. M.	*Easton.*
†White, S. N. C.	*Pooleville.*
Williams, W.	*Somerset Co.*
Wilson, H. P. C.	*Baltimore.*
Womble, P. M.	*do.*
Wroth, Peregrine	*Chestertown.*
Wynne, James	*Baltimore.*
Yeates, John L.	*do.*

DISTRICT OF COLUMBIA.

Antiselle, Thos.	*Washington.*
†Berry, William H.	*do.*
Bohrer, B. S.	*Georgetown.*
Boyle, Cornelius	*Washington.*
Busey, S. C.	*do.*
Coolidge, R. H.	*do.*
Croggon, Richard C.	*do.*
Dove, G. M.	*do.*
Duhamel, W. I. C.	*do.*
Eliot, Johnson	*do.*
Garnett, A. Y. P.	*do.*
Hagner, D. R.	*do.*
Hall, J. C.	*do.*
Hellen, B. J.	*do.*
Holston, J. G. F.	*do.*
Howard, Flodoardo	*do.*
Johnston, William P.	*do.*
Jones, W.	*do.*
Lieberman, C. H.	*do.*
Lindsley, Harvey	*do.*
Loomis, Silas L.	*do.*
Lovejoy, J. W. H.	*do.*
Magruder, Hez.	*Georgetown.*

Miller, Thomas	*Washington.*
Morgan, James E.	*do.*
Nichols, C. H.	*do.*
Richards, Jno.	*do.*
Riley, J. C.	*do.*
Riley, Joshua	*Georgetown.*
Stone, Robert K.	*do.*
Thomas, John M.	*do.*
Toner, J. M.	*Washington.*
Tyler, Grafton	*Georgetown.*
Waring, I. J.	*Washington.*
Young, N.	*do.*

VIRGINIA.

Allen, B. W.	
Ashby, O. H.	*Culpepper C. H.*
Atkinson, Thomas P.	*Danville.*
Barr, S. B. F. C.	*Big Spring, Taylorsville.*
Bates, W. J.	*Wheeling.*
Belt, H. S.	*Pittsylvania.*
Bolton, James	*Richmond.*
Brooks, John N.	*do.*
Brown, I. C.	*Alexandria.*
Brown, P. F.	*Acowac.*
Browne, O. A.	*Hicksford.*
Burruss, J. L.	*Louisa C. H.*
Cabell, J. G.	*Richmond.*
Cabell, James L.	*University of Virginia.*
Carmichael, George F.	*Fredericksburg.*
Cochran, William B.	*Loudon Co.*
Coleman, J. C.	*Richmond.*
Conway, James H.	*do.*
Cooke, A. T. M.	*Norfolk.*
Corbin, G. Lane	*Half-Way House, York Co.*
Cox, Thomas E.	*Richmond.*
Craghead, W. G.	*Danville.*
Creigh, Thomas	*Louisburg.*
Cunningham, Jno. A.	*Richmond.*
Dillon, A. S.	*Faronville.*
Dorset, J. L.	*Genito, Powhatan Co.*
Dove, James	*Richmond.*

Dove, Jno.	*Richmond.*
Faunt Le Roy, John	*White Post, Clarke Co.*
Frissel, John	*Wheeling.*
Gibson, Charles Bell	*Richmond.*
Gilbert, R. H.	*Fortress Monroe.*
†Gooch, P. Claiborne	*Richmond.*
Hancock, F. W.	*do.*
Harrison, E. J.	*Cartersville P. O., Cumberland.*
Haskins, W. D.	*Richmond.*
Haxall, Robert W.	*do.*
Hildreth, E. A.	*Wheeling.*
Houston, M. H.	*do.*
Howard, Henry	*University of Virginia.*
Hupp, John C.	*Wheeling.*
Hurt, J. M.	*Halloway City.*
†Johnson, Carter P.	*Richmond.*
Johnson, James	*Hicksford.*
Joynes, Levin S.	*Richmond.*
Kemper, Charles R.	*Woodville, Rappahannock Co.*
Lake, R. P.	*Richmond.*
Lee, George	*Leesburg, Loudon Co.*
Leigh, H. G.	*Petersburg.*
Lewis, M. M.	*Alexandria.*
Lewis, T.	*King and Queen, Stevensville P.O.*
Little, John	*Richmond.*
Lumpkin, Jno. G.	*Hanover.*
Lyle, James	*Farmville.*
Magill, Henry D.	*Leesburg.*
Mason, A. H.	*Falmouth.*
†Massie, H.	*Charlottesville.*
McCaw, J. B.	*Richmond.*
McElhenny, S. W.	*Wheeling.*
McGuire, Hugh H.	*Winchester.*
Merritt, A. T. B.	*Richmond.*
Merriwether, W. D.	*do.*
Mettauer, J. P.	*Prince Edward C. H.*
Mills, Charles S.	*Richmond.*
Moore, W. J.	*Norfolk.*
Morrison, E. A.	*Lawrence.*
Moseley, W. P.	*Buckingham.*
Nicholson, G. L.	*Middlesex Co.*

Parker, W. W.	*Richmond.*
Patrick, S.	*Kanawha C. H.*
Patteson, Samuel A.	*Manchester, Chesterfield Co.*
Patteson, W. A.	*Richmond.*
Payne, A. S.	*Paris, Fauquier Co.*
Peebles, J. F.	*Petersburg.*
Penticolas, A. E.	*Richmond.*
Phillips, W. H.	*Sublett's P. O., Powhatan Co.*
Pollard, Thomas	*Richmond.*
Powell, H. B.	*Alexandria.*
Powell, J. F.	*Middlebury.*
Power, R. H.	*Yorktown.*
Quarles, Charles	*Mechanicsville, Louisa Co.*
Randolph, Robert C.	*Mellwood P. O., Clarke Co.*
Roddey, F. W.	*Richmond.*
Rogers, R. E.	*University of Virginia.*
Schoolfield, I. N.	*Petersburg.*
Scott, Martin P.	*Richmond.*
†Selden, Henry	*Norfolk.*
Selden, William	*do.*
Silvester, R. W.	*do.*
Smith, J. W.	*Petersburg.*
Snead, Albert	*Richmond.*
Spencer, P. C.	*Petersburg.*
Tabb, J. Prosser	*Gloucester Co.*
Taylor, Kidder R.	*Columbia.*
Taylor, W. H.	*Richmond.*
Terrill, G. F.	*Caroline Co.*
Thweatt, J. J.	*Petersburg.*
Trent, P.	*Richmond.*
Trent, W. W.	*do.*
†Trigg, Daniel	*Abingdon.*
Tucker, A. B.	*Winchester.*
Tucker, David H.	*Richmond.*
†Upshur, George L.	*Norfolk.*
Walke, J. Wistar	*Chesterfield.*
Walshe, Samuel	*Prince George Co.*
Wellford, Beverly R.	*Richmond.*
Wellford, J. S.	*Fredericksburg.*
White, Luke	*Petersburg.*
Williman, A. B.	*Norfolk.*

Wilson, G. A.	*Richmond.*
Wilson, W. E.	*do.*
Wily, J. B.	*Macon.*
Withers, Thomas	*Petersburg.*
Worsham, H. C.	*Dinwiddie.*
Wortham, A. G.	*Richmond.*
Yearby, George T.	*Eastville, Northampton.*

NORTH CAROLINA.

Belt, H. Singleton	*Winston, Forsyth C. H.*
Dewey, C. F.	*Goldsboro'.*
Dickson, J. H.	*Wilmington.*
Irwin, J. S.	*Marion.*
Gibbon, J. H.	*Charlotte.*
Happolt, C.	*Morganton.*
Jones, J. B.	*Chapel Hill.*
Mabrey, B. W.	*Tarboro'.*
Manson, O. F.	*Lynesville.*
Mercer, Jno. R.	*Tarboro'.*
McKee, W. H.	*Raleigh.*
McKee, W. L.	*Morgantown, Burke Co.*
Myers, J. G. B.	*Washington.*
Norwood, Walter A.	*Hillsboro'.*
Pierce, A. B.	*Halifax.*
Pittman, Newson J.	*Tarboro'.*
Summerell, J. J.	*Salisbury.*
Thomas, Wm. Geo.	*Tarboro'.*
Thomas, W. G.	*Wilmington.*
Thompson, Jno. R.	*Raleigh.*
Tull, J. G.	*Newbern.*
Warren, E.	*Edenton.*
Warren, T. D.	*do.*
Warren, W. C.	*do.*
Webb, William	*Hillsboro'.*

SOUTH CAROLINA.

Bailey, R. S.	*Charleston.*
Barker, Sandford W.	*do.*
Barratt, Jno. P.	*Abbeville.*
†Bellinger, John	*Charleston.*
Bradley, B. W.	*King's Tree, Williamsburg.*

Brown, Pike	*Barnwell.*
Cain, D. J.	*Charleston.*
Clawson, C. L.	*Nation Ford.*
Coffin, Amory	*Aiken.*
Crane, Joseph S.	*Columbia.*
Dawson, J. L.	*Charleston.*
De Saussure, H. W.	*do.*
Elfe, Edward	*do.*
Elliott, Thomas A.	*Orangeburg.*
Fair, Samuel	*Columbia.*
†Flagg, Beling	*Charleston.*
Ford, Wm. H.	*do.*
Frost, Henry R.	*do.*
†Gaillard, Peter C.	*do.*
Gaston, J. McF.	*Columbia.*
Geddings, E.	*Charleston.*
Geddings, J. E. M.	*do.*
Gibbes, N. H.	*St. Helena.*
Gibbs, Robert W.	*Columbia.*
Goodwyn, T. J.	*Orangeburg.*
Hazell, Andrew	*All Saints.*
Henderson, E. R.	*Blue House P. O.*
Holbrook, J. E.	*Charleston.*
Hook, J. H.	*St. Matthew's.*
Horlbeck, Elias	*Charleston.*
Horlbeck, W. C.	*do.*
Huger, W. H.	*do.*
Jervey, James P.	*do.*
Kinlock, R. A.	*do.*
Lebby, Robert	*do.*
Lynch, John	*Cheraw.*
Marshall, J. W. W.	*Abbeville C. H.*
May, Jno.	*St. George's P. O.*
Mayes, J. A.	*Maysville.*
McKain, Wiley J.	*Camden.*
Michel, M.	*Charleston.*
Michel, R. F.	*do.*
Miles, F. T.	*do.*
Miller, W. C.	*Georgetown.*
†Mitchell, Edward	*Edisto.*
Mitchell, J. S.	*Charleston.*

Mittag, J. F. G.	*Lancaster.*
Mobley, W. W.	*Lancasterville.*
Moore, M. S.	*Statebury, Sumter Co.*
Moultrie, James	*Charleston.*
Moultrie, W. L.	*St. John's Berkley.*
Muller, G.	*Lexington.*
Ogier, T. L.	*Charleston.*
Porcher, F. Peyer	*do.*
Porcher, Francis Y.	*do.*
Prioleau, J. Ford	*do.*
Prioleau, Thomas G.	*do.*
Ravenel, St. Julien	*do.*
Ready, J. C.	*Edgefield.*
Robertson, F. M.	*Charleston.*
Robertson, T. S.	*Winsboro'.*
Rodrigues, B. A.	*Charleston.*
Shepherd, Charles W.	*do.*
†Simons, T. Y.	*do.*
Smith, Thomas	*Society Hill.*
Talley, A. N.	*Columbia.*
Waring, Morton	*Black Oak.*
White, O.	*Charleston.*
Williams, Alexander	*Chesterfield.*
Winthrop, Henry	*Charleston.*
Wragg, William F.	*do.*

GEORGIA.

Arnold, Richard D.	*Savannah.*
Banks, J. T.	*Zebulon.*
Benson, J. W.	*Savannah.*
Black, R. C.	*Augusta.*
Boring, Jesse	*La Grange.*
Boyd, A. M.	*Cave Spring, Floyd Co.*
Broadhurst, Wm.	*Augusta.*
Brown, H. W.	*Atlanta.*
Bullock, W. Gaston	*do.*
Campbell, H. F.	*Augusta.*
Campbell, Robert	*do.*
Colley, F. S.	*Monroe.*
Darnall, T. M.	*Atlanta.*
Doughty, W. H.	*Augusta.*

Dugas, L. A.	*Augusta.*
Eve, Joseph A.	*do.*
Ford, L. D.	*do.*
Garvin, J. P.	*do.*
Gilbert, J. C.	*Perry.*
Green, James N.	*Macon.*
Harris, Juriah	*Augusta.*
Harris, Stephen N.	*Savannah.*
Hofey, Thomas	*Columbus.*
Hollingsworth, W. T.	*Buckhead.*
Howard, J. Gordon	*Savannah.*
Jones, Jno. W.	*Atlanta.*
Jones, Jos.	*Augusta.*
Jones, W. B.	*Atlanta.*
Jones, W. S.	*Augusta.*
Kollock, Phineas M.	*Savannah.*
Le Hardy, J. C.	*do.*
Logan, J. P.	*Atlanta.*
Means, A. H.	*Augusta.*
Moore, Richard D.	*Athens.*
Nottingham, C. B.	*Macon.*
Ogilby, Hugh J.	*Madison.*
Oliver, M. H.	*Atlanta.*
Padelford, George P.	*Savannah.*
Phinizy, T. B.	*Augusta.*
Posey, John F.	*Savannah.*
Powell, Thomas S.	*Sparta.*
Powers, N. F.	*Harrison.*
Quintard, C. T.	*Roswell.*
Read, James B.	*Savannah.*
Richardson, C. P.	*do.*
Robertson, J. G.	*do.*
Ruffin, W. R.	*Augusta.*
Simmons, J. N.	*Griffin.*
Smith, B. M.	*Atlanta.*
Thomas, A. G.	*do.*
Thompson, E. J.	*Augusta.*
Tufts, Johnson B.	*Savannah.*
Walton, C. R.	*Augusta.*
Westmoreland, J. G.	*Atlanta.*

ALABAMA.

Alexander, Abm. F.	*Eutaw.*
Anderson, L. H.	*Sumterville.*
Anderson, W. H.	*Mobile.*
Bass, W. J.	*Stevenson.*
Blakey, Boling A.	*Montgomery.*
Boling, Wm. M.	*do.*
Bozeman, N.	*do.*
Cabell, P. H.	*Selma.*
†Clanton, S. W.	*Warsaw.*
Coons, J. B.	*Courtland.*
Cotnam, T. T.	*Stevenson.*
Dement, J. J.	*Meridianville.*
Denny, A.	*Suggsville.*
English, I. A.	*Cahaba.*
Gordon, F. E.	*Marion.*
Hargraves, J. T.	*Florence.*
Johnson, W. B.	*Marion, Perry Co.*
Jones, Benjamin	*Montgomery.*
Leftwich, W. D.	*Huntsville.*
Lopez, A.	*Mobile.*
Malone, T. Stith	*Athens.*
Meriwether, G.	*Line Creek.*
Miller, R.	*Mobile.*
Morris, J. Webb	*Courtland.*
Norris, G. D.	*New Market.*
Percival, C. F.	*Lowndes Co.*
Reese, A. J.	*Pleasant Hill.*
Reese, W. P.	*Selma.*
Sowell, J. F.	*Athens.*
Thorton, Wm. H.	*Eufaula.*
Turney, Isaac N.	*Sommerville.*
Winn, P. C.	*New Berne.*

LOUISIANA.

†Barton, Edward H.	*New Orleans.*
Beard, C.	*do.*
†Carpenter, Wm. M.	*do.*
Dowler, Bennett	*do.*
Fenner, E. D.	*do.*

†Harrison, J.	*New Orleans.*
Jones, James	*do.*
New, Robert A.	*St. Joseph.*
Nott, G. A.	*New Orleans.*
Richardson, J. G.	*do.*
Scruggs, S. O.	*Clantonville.*
Semmes, A. J.	*New Orleans.*
Simonds, J. C.	*do.*

MISSISSIPPI.

Cain, J. S.	*Pontotoc.*
Divine, K. C.	*Sharon.*
†Grafton, Thomas J.	*Rodney.*
Keirn, G.	*Lexington, Holmes Co.*
Lowe, John T.	*Aberdeen.*
Shufford, F. B.	*Holly Springs.*
Williams, William G.	*Rodney.*

TENNESSEE.

Abernathy, J. J.	*Hockerville.*
Atchinson, T. A.	*Nashville.*
Avent, B. W.	*Murfreesboro'.*
Baskette, W. T.	*do.*
Bethshares, H. H.	*Nashville.*
Bowling, W. K.	*do.*
Boyd, J. M.	*Knoxville.*
Brannock, J. M.	*McLemoresville.*
Buchanan, A. H.	*Nashville.*
Burford, J. S.	*Whiteville.*
Callander, Jno. H.	*Nashville.*
Cavenagh, W. C.	*Memphis.*
Chetham, Jno. L.	*Nashville.*
Chetham, W. A.	*do.*
Childress, W. H.	*do.*
Clayton, H. H.	*Murfreesboro'.*
Clements, H. M.	*Clementsville.*
Clements, W. M.	*Gainsboro'.*
Cliff, D. B.	*Franklin.*
Conwell, Ira	*Nashville.*
Currey, R. O.	*Knoxville.*

Dabney, C. R.	*Clarksville.*
Dashiel, W. B.	*Shelbyville.*
Davis, P. W.	*Chapel Hill.*
Epperson, J. P.	*Pulaski.*
Estill, Wallace	*Winchester.*
Evans, R. F.	*Shelbyville.*
Eve, Paul F.	*Nashville.*
Ewing, Andrew B.	*Franklin.*
Ford, Jno. P.	*Nashville.*
Foster, R. C.	*Nashville.*
Grant, George	*Memphis.*
Grant, George R.	*do.*
Guthrie, C. B.	*do.*
Haggard, W. D.	*Gallatin.*
Harris, S. H.	*Nashville.*
Harris, Zeno	*Memphis.*
Haskins, E. B.	*Nashville.*
Henderson, Eugene	*Murfreesboro'.*
Hoyte, James W.	*Nashville.*
Illson, B. C.	*Lebanon.*
Jennings, Thomas R.	*Nashville.*
Johnson, J. L. C.	*Clarksville.*
Jones, A.	*Shelbyville.*
Jones, W. P.	*Nashville.*
Keller, James M.	*Memphis.*
Kelly, John D.	*Nashville.*
Kennedy, Thomas J.	*Cornersville.*
Lawrence, J. M.	*Nashville.*
Lenoir, B. B.	*Lenoir P. O.*
Lindsley, J. B.	*Nashville.*
Lipscomb, Thomas	*Shelbyville.*
Litton, A.	*Nashville.*
Logue, J.	*Rural Hill.*
Long, J. A.	*Cantrel Cross Roads.*
May, J. F.	*Nashville.*
McMurray, S. T.	*Spring Hill.*
McNutt, J. W.	*Kingston.*
Maddin, Thomas L.	*Nashville.*
Malone, H. B.	*Gallatin.*
Manlove, J. E.	*Nashville.*
Martin, Robert	*do.*

Mayfield, George A. I.	*Nashville.*
Mayfield, S. S.	*do.*
Millington, John	*Memphis.*
Moore, W. P.	*Mitchelville.*
Morton, Jno. H.	*Nashville.*
Murrell, T. C.	*Winchester.*
Newnan, J. C.	*Nashville.*
Owen, Richard	*do.*
Park, Jno. S.	*Franklin.*
Perkins, N. C.	*do.*
Peters, Manly	*Knoxville.*
†Porter, R. M.	*Nashville.*
Ramsey, Frank A.	*Knoxville.*
Ransom, M.	*Murfreesboro'.*
Rice, F.	*Memphis.*
Robards, H. R.	*do.*
Rodgers, James	*Knoxville.*
Senter, W. D.	*Hannas P. O.*
Shanks, Lewis	*Memphis.*
Smith, G. F.	*Somerville.*
Smith, Milo	*Chattanooga.*
Stockard, W. P.	*Mount Pleasant.*
Stroud, F. B.	*Gladeville.*
Thomas, N. L.	*Clarksville.*
Towns, J. F.	*Farmville.*
Watson, Jno. M.	*Nashville.*
Wharton, S. L.	*do.*
Wheeler, E. D.	*Murfreesboro'.*
Whitaker, H. M.	*Clarksville.*
White, J. S.	*Memphis.*
White, R. G. P.	*Pulaski.*
Winston, C. K.	*Nashville.*
Winston, Jno. D.	*do.*
Woodson, T. M.	*Hannas P. O., Summer Co.*
Woodward, P. S.	*Nashville.*
Wright, D. F.	*do.*

KENTUCKY.

Almon, L. E.	*Underwood.*
Anderson, N. B.	*Louisville.*
Annan, Samuel	*Hopkinsville.*

Atchinson, W. A.	*Bowling Green.*
Baily, J. R.	*Hesper.*
Bayless, G. W.	*Louisville.*
Bell, T. S.	*do.*
Bemiss, S. M.	*do.*
Berkley, H.	*Bloomfield.*
Blackburn, C. J.	*Covington.*
Bradford, J. T.	*Augusta.*
Breckinridge, R. J.	*Louisville.*
Brown, E. O.	*Brandonberg.*
Bryan, S. B.	*Brownsboro'.*
Bush, J. M.	*Lexington.*
Cain, W. S.	*Marion.*
Caldwell, W. B.	*Louisville.*
Callaway, A.	*do.*
Chambers, Wm. M.	*Covington.*
Chipley, W. S.	*Lexington.*
Cleaver, W. W.	*Lebanon.*
Cook, A. B.	*Louisville.*
Cook, J. B.	*Henderson.*
Cummins, D.	*Louisville.*
Davis, E. G.	*Underwood.*
Disnukes, Jno. L.	*Mayfield.*
Edwards, R. A.	*Wallon, Boone Co.*
†Evans, Asbury	*Covington.*
Evans, W. R.	*Harrodsburg.*
Field, S. B.	*Columbia.*
Fitch, G. N.	*Logan's Port.*
Fleming, Jno. T.	*Flemingbury.*
Flint, J. B.	*Louisville.*
Forée, E. D.	*O. Bannons.*
Foster, J. Q. A.	*Newport.*
Freeman, D. L.	*Floydsburg.*
Gaines, R. W.	*Hopkinsville.*
Gaither, W. N.	*Empire Iron Works.*
Gardner, W. H.	*Woodsonville.*
Gilpin, W. E.	*Louisville.*
Givins, H. L.	*Lagrange.*
Goldsmith, M.	*Louisville.*
Goodloe, A. W.	*do.*
Gore, J.	*Bloomfield.*

Griffiths, D. J.	*Mt. Washington.*
Grubbs, T. H.	*Russellville.*
Hardin, Jno.	*Louisville.*
Hays, W.	*Covington.*
Hewit, R. C.	*Louisville.*
Hodge, J. A.	*Marion.*
Holt, W. D.	*Covington.*
Hopson, H.	*Paris.*
Johnston, J. C.	*Louisville.*
Landrum, J. D.	*Mayfield.*
Letcher, R. P.	*Henderson.*
Lincoln, J.	*Louisville.*
Marshall, F.	*do.*
Marshall, N. B.	*do.*
Mattingley, C. P.	*Bardstown.*
Miller, Henry	*Louisville.*
Miller, W. H.	*Henderson.*
Montgomery, F. G.	*Hopkinsville.*
Moore, Thomas J.	*Harrodsburg.*
Norwood, Walter A.	*Henderson.*
O'Reilly, D. J.	*Louisville.*
Pollin, J. H.	*Springfield.*
Porter, L. C.	*Bowling Green.*
Powell, L.	*Louisville.*
Pusey, H. K.	*Garnetsville.*
Raphael, B. J.	*Louisville.*
Ray, L. G.	*Paris, Bourbon Co.*
Reid, S.	*Salem.*
Richardson, E.	*Monticello.*
Richardson, S. B.	*Louisville.*
Richardson, S. B.	*Shelbyville.*
Rogers, Lewis	*Louisville.*
Ronald, G. W.	*do.*
Russell, L.	*Owensborough.*
Satterwhite, T. P.	*Louisville.*
Settle, T. L.	*do.*
Shiveley, A. H.	*Campbellsville.*
Singleton, J. W.	*Smithland.*
Skillman, H. M.	*Lexington.*
†Sneed, W. C.	*Frankfort.*
Spillman, C. H.	*Harrodsburg.*

Stevens, B. L.	*Union, Boone Co.*
Stirman, W. D.	*Owensboro'.*
Sutton, W. L.	*Georgetown.*
Thomson, D. D.	*Louisville.*
Todd, L. B.	*Lexington.*
Turner, W. A.	*Mayfield.*
Weatherford, E. D.	*Louisville.*
Wibble, B. M.	*do.*
Wood, A. C.	*Owensboro'.*
Wood, B. S.	*Trenton.*
Yandell, D. W.	*Louisville.*
Yandell, L. P.	*do.*

OHIO.

Agard, A. H.	*Sandusky.*
Allen, P.	*Kinsman.*
Almy, S. O.	*Cincinnati.*
Armor, S. G.	*Dalton.*
Arons, Jno. J.	*Cincinnati.*
Austin, A.	*Sandusky.*
Awl, Wm. M.	*Columbus.*
Ayres, A.	*Greenville.*
Baird, James M.	*Bourneville.*
Baker, Abraham H.	*Cincinnati.*
Baker, T. H.	*Wayne Co.*
Battles, W. S.	*Edinburg.*
Beck, J. C.	*Cincinnati.*
Bigelow, J. M.	*Lancaster.*
Boerstler, G. H.	*do.*
Bonner, S.	*Cincinnati.*
Branson, Smith	*Chester Hill.*
Briggs, J. M.	*Marion.*
Brown, B. S.	*Bellefontaine.*
Brown, J. C.	*Urbana.*
Buckner, James H.	*Cincinnati.*
Buckner, Philip J.	*Georgetown.*
†Butterfield, J.	*Columbus.*
Carey, Abel	*Salem.*
Carey, Harvey G.	*Dayton.*
Carroll, Thomas	*Cincinnati.*
Carson, William	*Chillicothe.*

Carter, Francis	*Columbus.*
Charters, W. M.	*Lebanon, Warren Co.*
Clements, Joshua	*Dayton.*
Clendennin, William	*Cincinnati.*
Cochrane, Charles	*Sandusky.*
Colton, C. D.	*Marietta.*
Comegys, C. G.	*Cincinnati.*
Conklin, H. Smith	*Sidney, Shelby Co.*
Coons, Israel A.	*Dayton.*
Corson, J.	*Portsmouth.*
Cotton, D. B.	*do.*
Cotton, J. D.	*Marietta.*
Cox, D. A.	*New Paris.*
Crane, Isaac L.	*Ashland.*
Crews, James H.	*Upshur, Preble Co.*
Crume, Pliny M.	*Eaton, Preble Co.*
Dandridge, A. S.	*Cincinnati.*
Davis, Jno.	*Dayton.*
Davis, W. B.	*Cincinnati.*
Dawson, Jno.	*Columbus.*
Dawson, J. R.	*Bellbrook.*
Dawson, W. W.	*Cincinnati.*
Delamater, Jacob J.	*Cleveland.*
Denice, J. C.	*Dayton.*
Denig, Robert M.	*Columbus.*
Dodge, J. S.	*Cincinnati.*
Doherty, G. A.	*do.*
Dorsey, G. Volney	*Piqua.*
†Drake, Daniel	*Cincinnati.*
Dunahue, H. J.	*Sandusky.*
Dunlap, A.	*Ripley.*
Eaton, T. J.	*New Paris, Preble Co.*
Effinger, M.	*Lancaster.*
Ferris, O.	*Upper Sandusky.*
Ferris, S.	*New Westville.*
Fisher, Elias	*Waynesville, Warren Co.*
Foote, H. E.	*Cincinnati.*
Ford, James B.	*Norwalk.*
Ford, P. G.	*Cincinnati.*
Fries, George	*do.*
Fyffe, E. P.	*Urbana.*

Gard, J. N.	*Greenville.*
Gaston, Ephraim	*Morristown.*
Gilchrist, R. S.	*De Graff.*
Gillet, B.	*Springfield.*
Gordon, Thomas W.	*Georgetown.*
Graham, James	*Cincinnati.*
Grant, Charles	*do.*
Griswold, L. D.	*Elyria.*
Grundy, Richard	*Columbus.*
Hall, W. C.	*Fayetteville.*
Hamilton, J. W.	*Columbus.*
†Harrison, John P.	*Cincinnati.*
Heighway, A. E.	*do.*
Helmick, J.	*Harrisburg.*
Henderson, J. P.	*Newville.*
Heterick, A. B.	*Georgetown.*
Hills, Ralph	*Columbia.*
†Howard, Richard L.	*Columbus.*
Huestis, Isaac	*Chester Hill.*
Hughes, C. B.	*Cincinnati.*
Hunt, Samuel P.	*Morrow, Warren Co.*
Hurxthal, Frederick T.	*Massillon.*
Janes, W. W.	*Toledo.*
Johnson, A. M.	*Cincinnati.*
Jones, C.	*West Union.*
Jones, W. W.	*Toledo.*
Judkins, David	*Cincinnati.*
Judkins, J. P.	*do.*
Judkins, William	*do.*
Kable, W. R.	*Bellbrook.*
Kelly, P. H.	*Waterford.*
Kendrick, Oscar C.	*Newburg.*
Kincaid, W. P.	*Neville.*
†Koehne, H. F.	*Dayton.*
Kreider, M. Z.	*Lancaster.*
Kyle, J. G.	*Xenia.*
Lamme, W. H.	*Dayton.*
Lane, E. S.	*Sandusky.*
Langdon, O. M.	*Cincinnati.*
Lawson L. M.	*do.*
Lecklider, L. G.	*New Madison.*

Leighton, W. P.	*Kenton.*
Leonard, B. B.	*West Liberty.*
Mack, H. O.	*Shelby.*
Maggini, J. C.	*Fayetteville.*
Martin, Joshua	*Xenia.*
Matson, A. F.	*Loganville.*
McArthur, J. W.	*Wilmington.*
McDermot, C.	*Dayton.*
McFarland, J. A.	*Tiffin City.*
McGrew, J. S.	*Montgomery, Hamilton Co.*
McIlvaine, R. R.	*Cincinnati.*
McMally, Thomas	*Chillicothe.*
McMeens, R. R.	*Sandusky.*
McMillen, W. L.	*Columbus.*
Mendenhall, George	*Cincinnati.*
Mitchell, G. F.	*Mansfield.*
Mosgrove, Jas. M.	*Urbana.*
Mount, W.	*Cincinnati.*
Moxley, M. R.	*Wheelersburg.*
Moxley, N. K.	*Ironton.*
Mullen, T. J.	*New Richmond.*
Munson, A. W.	*Kenton.*
Murphey, Jno. A.	*Cincinnati.*
Musgrave, H. B.	*do.*
Musgrove, A.	*Urbana.*
Mussey, F. B.	*Cincinnati.*
Mussey, Reuben D.	*do.*
Mussey, W. H.	*do.*
Neff, B.	*New Carlisle.*
†Norton, J. C.	*Marion.*
Norton, O. D.	*Cincinnati.*
Philips, W. H.	*Kenton.*
Potter, J. F.	*Cincinnati.*
Raymond, C. H.	*do.*
Rea, R. L.	*do.*
Read, A. M.	*Norwalk.*
Richardson, B. F.	*Cincinnati.*
Richards, Wolcott	*do.*
Rives, L. C.	*do.*
Robertson, C.	*McConnelsville.*
Robison, J. D.	*Wooster, Wayne Co.*

Rogers, J. G.	*New Richmond.*
Russell, John W.	*Mount Vernon.*
Sachse, G. J.	*Lancaster.*
Safford, R.	*Putnam.*
Sams, C. C.	*Hillsborough.*
Sayles, J. A.	*Cleveland.*
Scarff, W. D.	*Bellefontaine.*
Schenk, C. F.	*Columbus.*
Schenk, W. L.	*Franklin.*
Sheets, L. D.	*Dayton.*
Sheldon, B.	*Cleveland.*
Sibley, E. H.	*Lodi, Medina Co.*
Slusser, Lewis	*Canton.*
Smith, A. C.	*Medina C. H.*
Smith, Edwin	*Dayton.*
Smith, John A.	*Piqua.*
Smith, J. B.	*Cincinnati.*
Smith, Samuel M.	*Columbus.*
Smith, S. Hanbury	*do.*
Spillman, Henry	*Medina.*
Steele, H. K.	*Dayton.*
Stevens, E. B.	*Cincinnati.*
Stevens, Joshua	*Lebanon.*
St. John, Samuel	*Cleveland.*
Strader, D. P.	*Cincinnati.*
Taggart, T. M.	*Dalton.*
Taggart, W. W.	*Smithville, Wayne Co.*
Taggert, J. M.	*Dalton.*
Taliaferro, W. I.	*Cincinnati.*
Tappan, B.	*Steubenville.*
Taylor, James	*Cincinnati.*
Thall, W. C.	*Fayetteville.*
Thomas, K. G.	*Alliance.*
Thompson, J. B.	*Columbus.*
Thompson, R.	*do.*
Tilden, D.	*Sandusky, Erie Co.*
Trevitt, Wm.	*Columbus.*
Tweed, T. M.	*Eckmansville.*
Updegraff, J. T.	*Mount Pleasant.*
Vanharlingen, I.	*Lebanon.*
Vattier, J. L.	*Cincinnati.*

Walker, J. P.	*Cincinnati.*
Waterman, L. D.	*do.*
Webber, G. C. E.	*Cleveland.*
West, Henry	*Clairsville, Belmont Co.*
White, James	*Lancaster.*
White, John F.	*Cincinnati.*
White, J. W.	*Stockport.*
Whiting, A. W.	*Newburg.*
Williams, I. C.	*Bloomington.*
Wood, Thomas	*Cincinnati.*
Woodward, Charles	*do.*
Wormley, T. G.	*Columbus.*
Wright, James	*Belmont.*
Wright, M. B.	*Cincinnati.*

INDIANA.

Austin, T. R.	*New Albany.*
Ayers, H. P.	*Fort Wayne.*
Beard, F. W.	*Corydon.*
Bigelow, A. A.	*Attica.*
Bowman, C.	*New Albany.*
Boyd, S. S.	*Jacksonburg.*
Boynton, H. G.	*Elizabethtown.*
Brelsford, Joseph	*Plymouth.*
Brown, C.	*Indianapolis.*
Brown, J. H.	*Lawrenceburg.*
Buchtell, J. B.	*South Bend.*
†Bullard, Talbut	*Indianapolis.*
Butler, A. B.	*Richmond.*
Cameron, R. A.	*Valparaiso.*
Cary, H. G.	*Indianapolis.*
Castleberry, Isaac	*Evansville.*
Clapp, A.	*New Albany.*
Clapp, W. A.	*do.*
Cogley, T. J.	*Madison.*
Cornet, W. T. S.	*Versailles.*
Crandall, R. O.	*Laporte.*
Curran, B.	*Jeffersonville.*
Darnall, M. D.	*Bainbridge.*
Davis, J. W.	*Carlyle.*
Davis, S.	*Columbus.*

Dean, H. K.	*Mauckport.*
Dicken, James L.	*Somerset.*
Dickey, William	*Centerville.*
Erwin, A. J.	*Fort Wayne.*
Ferris, A. B.	*New Paris.*
†Fishback, C.	*Shelbyville.*
Florrer, T. W.	*Alamo.*
Freeman, S. A.	*Fort Wayne.*
Green, Jno. N.	*Stilesville.*
Harding, M. H.	*Lawrenceburg.*
Haughton, R. E.	*Richmond.*
Haymond, R.	*Brookville.*
Hibberd, James F.	*Richmond.*
Higday, T.	*Laporte.*
Hinkle, J. M.	*Carlisle.*
Hitt, W. W.	*Vincennes.*
Horne, S. S.	*Marion.*
Humphries, Lewis	*South Bend.*
Hutchinson, David	*Mooresville.*
Jennis, Samuel	*New Castle.*
Jessup, D. H.	*Rising Sun.*
John, H. V. V.	*Indianapolis.*
Johnson, Nathan	*Cambridge City, Wayne Co.*
Jones, D. M.	*Corydon.*
Kennedy, L. H.	*Belleville.*
Kersey, Vierling	*Milton.*
Kitchen, J. M.	*Indianapolis.*
Latta, Milton M.	*Goshen.*
Leedy, J. K.	*Warsaw, Kosciusko Co.*
Leonard, S. E.	*New Albany.*
Linton, S. M.	*Columbus.*
Lomax, William	*Marion.*
Lyons, W. B.	*Huntington.*
Maclean, George M.	*New Albany.*
Mantle, John R.	*Vincennes.*
Martin, William H.	*Rushville.*
Mauzey, R. D.	*do.*
Maxwell, J. D.	*Bloomington.*
McPheeters, A.	*Lavonia.*
Mears, G. W.	*Indianapolis.*
Meeker, D.	*Laporte.*

Mendenhall, Isaac	*Ashland, Henry Co.*
Moffet, Jno.	*Rushville.*
Morgan, Daniel	*Evansville.*
Mothershead, F. M.	*Indianapolis.*
†Mothershead, I. L.	*do.*
Mullen, Alexander J.	*Napoleon, Ripley Co.*
Murphy, Edward	*New Harmony, Posey Co.*
Newland, B.	*Bedford.*
New, G. W.	*Greensburg.*
Parry, Charles	*Indianapolis.*
Patterson, R. J.	*do.*
Pennington, Joel	*Milton, Wayne Co.*
Personett, L. D.	*Washington.*
Reeder, W.	*Corydon.*
Riley, J. M.	*New Albany.*
Ritter, Levi	*Plainfield.*
Rodgers, J. H. D.	*Madison.*
Ronalds, Hugh	*Evansville.*
Rose, Landon C.	*Laporte.*
Rowan, B. C.	*Fort Wayne.*
Sarbor, W. E.	*Palestine.*
Sexton, H. G.	*Rushville.*
Sheets, L. D.	*Liberty.*
Shields, P. S.	*New Albany.*
Shively, James S.	*Marion, Grant Co.*
Sloan, John	*New Albany.*
Sommes, Joseph	*Vincennes.*
Sutton, George	*Aurora.*
Sweeny, T. J.	*New Albany.*
Talbert, A. V.	*Westfield.*
Taylor, D. W.	*Jalapa.*
Town, R. R.	*New Albany.*
Vickey, A. M.	*Indianapolis.*
West, Calvin	*Hagerstown.*
Windle, J. A.	*Bluntsville.*
Winton, Wm. R.	*Wabash.*
Wishard, Wm. H.	*Greenwood.*
Woodburn, J. H.	*Indianapolis.*
Woodworth, B. S.	*Fort Wayne.*
Wright, J. J.	*Monrovia.*

ILLINOIS.

Allen, George T.	*Marine.*
Amerman, George K.	*Chicago.*
Andrews, E.	*do.*
Bailey, F. K.	*Joliet, Will Co.*
Baldwin, S. G.	*Decatur.*
Bane, Wm. M.	*Payson.*
Banks, E. C.	*Charleston.*
Bartlett, John	*Chicago.*
Bassett, M. F.	*Quincy.*
Bevan, Thomas	*Chicago.*
Blaney, J. V. Z.	*do.*
Bloodgood, James	*do.*
Brainard, Daniel	*do.*
Brengle, Daniel D.	*Winchester.*
Bridges, V. R.	*Salisbury.*
Brooks, Jonathan W.	*Chicago.*
Brown, H. B.	*Rockford.*
Brown, J. A.	*Kankakee.*
Bunce, James	*Galesbury.*
Byford, W. H.	*Chicago.*
Chamberlain, W. O.	*Princeton.*
Cheeny, L. P.	*Chicago.*
Clark, C. M.	*Galva.*
Clark, Charles W.	*Rockford.*
Clark, Lucius	*do.*
Colburn, E. M.	*Peoria.*
Coolidge, Charles	*Warsaw.*
Cooper, E. S	*Peoria.*
Coopins, P. G.	*Fairweather.*
Crane, A. J.	*Decatur.*
Crothers, E. K.	*Bloomington.*
Crouse, D. F.	*Mount Carroll.*
Curtis, J. B.	*Decatur.*
Davis, N. S.	*Chicago.*
Davis, Wm. H.	*La Salle.*
De Witt, M. F.	*White Hall.*
Dickinson, Edward	*Peoria.*
Dodge, David	*Chicago.*
Duffield, E. G.	*Woodstock.*

Durham, Henry	*La Salle.*
Earle, Silas	*Onargo.*
Edmiston, T. K.	*Clinton.*
Edwards, Willis G.	*Alton.*
Evans, John	*Chicago.*
†Everett, S. W.	*Quincy.*
Fisher, Alexander	*Chicago.*
Fisher, T. D.	*Le Roy.*
Fitch, T. D.	*Kewanee.*
Foote, D. E.	*Belvidere.*
Fox, G. M.	*Lyons, Cook Co.*
Fox, W. R.	*Wilmington.*
Freer, J. W.	*Chicago.*
Frye, Joseph C.	*Peoria.*
Gardner, E. C.	*Vermont.*
Golleday, H. P.	*Lacon.*
Goodbrake, C.	*Clinton.*
Gorham, Charles	*York.*
Graham, J. N.	*Chicago.*
Gregg, P.	*Rock Island.*
Hall, Geo. W.	*Carthage.*
Haller, F. B.	*Vandalia.*
Hamill, R. C.	*Chicago.*
Hamilton, Wm. R.	*Peoria.*
Hard, A.	*Aurora.*
Hard, C.	*Ottawa.*
Harriman, H. C.	*Jerseyville.*
Harrington, W. C.	*Payson.*
Hatch, Ira	*Chicago.*
Haven, S. R.	*do.*
Hay, Walter	*do.*
Heydock, M. O.	*do.*
Herrick, Josiah B.	*Vandalia.*
Herrick, W. B.	*Chicago.*
Hillis, Wm. A.	*Hillsboro'.*
Hinsey, Jos. C.	*Pekin.*
Hitchcock, Horatio	*Chicago.*
Hobbs, J. C. H.	*Galena.*
Hollester, J. H.	*Chicago.*
Holmes, E. L.	*do.*
Hume, S. T.	*Genesee.*

Hurd, H. S.	*Galesbury.*
Hurlbut, H. N.	*Chicago.*
Hurlbut, V. L.	*do.*
Isham, R. N.	*do.*
Johnson, C.	*York.*
Johnson, H. A.	*Chicago.*
Johnson, H. H.	*do.*
Johnson, M. J.	*Wilmington.*
Jones, H. Webster	*Chicago.*
King, Joseph	*Decatur.*
King, J. S.	*Lemont.*
Kirwan, P.	*Ottawa.*
Knox, Wm. A.	*Rock Island.*
Lake, J. J.	*De Witt.*
Lardner, E. C.	*Vermont.*
Lattimer, C. C.	*Princeton.*
Lewis, B. S.	*De Witt.*
Long, S.	*Springfield.*
Luce, A. H.	*Bloomington.*
Madden, Z. H.	*Clinton.*
Maus, Jos. S.	*Perkin.*
Maus, W. S.	*do.*
McAllister, J.	*Chicago.*
McArthur, A. L.	*Joliet.*
McCord, D. O.	*York.*
McVey, Richard E.	*Waverly.*
Miller, De Laskie	*Chicago.*
Nance, Hiram	*Kewanee.*
Nichols, Adams	*Quincy.*
Noble, H.	*Heyworth.*
Noble, S. W.	*Le Roy.*
Paddock, S. A.	*Princeton.*
Page, J. L.	*Chicago.*
Palmer, A. B.	*do.*
Paoli, Gerhard	*do.*
Parker, Henry	*do.*
Parker, M.	*do.*
Parks, C. R.	*Bloomington.*
Pashley, Jno. S.	*Osceola.*
Paterson, Neils P.	*Chicago.*
Perry, Joseph	*Crete.*

Pierson, Daniel	*Augusta.*
Porter, John B.	*U. S. Army.*
Prince, David	*Jacksonville.*
Quigley, W. C.	*Chicago.*
Ralston, J. N.	*Quincy.*
Rankin, C. D.	*Peoria.*
Robbins, H. C.	*Newark.*
Robinson, W.	*Dover.*
Rogers, T. P.	*Bloomington.*
Ross, J. P.	*Chicago.*
Rouse, Rudolphus	*Peoria.*
Samuel, J. B.	*Carrollton.*
Secord, Van Courtland	*Galva.*
Sedgwick, W. W.	*Sandwich.*
Shepherd, M.	*Payson, Adams Co.*
Shumway, C. W.	*Chicago.*
Skelling, David	*Winchester.*
Smith, Charles G.	*Chicago.*
Smith, H. M.	*Vincennes.*
Smith, Orrin	*Chicago.*
Spitler, A.	*Carthage.*
Stahl, Adam	*Quincy.*
Steele, E. A.	*Marshall.*
Steele, James M.	*Grandview.*
Stewart, A. E.	*Bloomington.*
Stipp, George W.	*do.*
Stormont, D. W.	*Grandview.*
Stout, Joseph	*Ottawa.*
Ten Brook, John	*Paris.*
Terry, A. R.	*Joliet.*
Thomas, Granville S.	*do.*
Thompson, Samuel	*Albion, Edwards Co.*
Tibbetts, L. P.	*Cottage Hill.*
Trowbridge, S. T.	*Decatur.*
Truesdell, Cilvin	*Rock Island.*
Tucker, D. M.	*Chicago.*
Varien, Wm.	*do.*
Wanzer, Hiram	*do.*
Warner, L. F.	*do.*
Washburn, Thomas D.	*Lawrenceville.*
Welch, Wm. W.	*La Salle.*

White, Chas.	*Chicago.*
White, F. W.	*do.*
Wickersham, S.	*do.*
Wilkins, T.	*Vandalia.*
Williams, Hezekiah	*Alton.*
Wing, Henry	*Chicago.*
Wood, Wm.	*Cairo.*
Worrell, T. F.	*Bloomington.*
Wright, N.	*Chatham.*
Young, D. W.	*Aurora.*

MISSOURI.

Adreon, Stephen W.	*St. Louis.*
Alexander, John B.	*Lexington.*
Allen, J. M.	*Prospect Hill.*
Alleyne, J. S. B.	*St. Louis.*
Atkinson, J. F.	*Lexington.*
Barnes, Jno.	*St. Louis.*
Barret, R. T.	*do.*
Baumgarten, Fred. E.	*do.*
Chandler, Chas. Quarles	*Rockfort.*
Clarke, R.	*St. Louis.*
Coons, A. J.	*do.*
Cooper, D. M.	*do.*
Currie, Wm. A.	*Jefferson City.*
Edgar, Wm. S.	*St. Louis.*
Engleman, George	*do.*
Frazer, E. S.	*do.*
Golden, Walter S.	*do.*
Hartt, Geo. C.	*Boonville.*
Hempstead, C. W.	*St. Louis.*
Holmes, R. S.	*do.*
Johnson, George	*do.*
Johnson, John B.	*do.*
Johnson, Richard P.	*do.*
Knode, Oliver B.	*St. Joseph.*
Lemoine, E. S.	*St. Louis.*
Lewis, R. K.	*Huntsville.*
Linten, M. L.	*St. Louis.*
Magoffin, John	*do.*
Massie, T. E.	*do.*

McDowell, Joseph N.	*St. Louis.*
McMurray, John H.	*Independence.*
McPheeters, Wm. M.	*St. Louis.*
Meade, D. E.	*do.*
Mendenhall, T. J.	*Palmyra.*
Moore, John S.	*St. Louis.*
Moses, S. Gratz	*do.*
Pallen, M. A.	*do.*
Penn, George	*Fee-fee.*
Perry, L. P.	*St. Louis.*
Phillips, Geo. W.	*do.*
Pollak, S.	*do.*
Pope, Charles A.	*do.*
†Reyburn, Thomas	*do.*
Reynolds, J. W.	*Fort William.*
Riley, A. A.	*Fulton.*
Ritchie, S.	*Liberty.*
Schoeneich, H.	*St. Louis.*
Scott, J. W.	*do.*
Shoemacher, Hammond	*Milwood.*
Smith, E. F.	*St. Louis.*
Smith, J. D.	*Fayette.*
Stevens, C. W.	*St. Louis.*
Swallow, G. C.	*Columbia.*
Tandy, D. C.	*St. Louis.*
Vaughn, Isaac P.	*Glasgow.*
Walker, George S.	*St. Louis.*
Washington, James R.	*do.*
Watters, Jno. H.	*do.*
Welburn, John C.	*Frankford.*
Wilson, J. W.	*St. Louis.*
Wislizénus, Adolphus	*do.*
Woodson, John C.	*Spencerburg.*

ARKANSAS.

Armstrong, F. W.	*Pine Bluff.*
McGavoch, F. Grundy	*Pecan-Point.*

MICHIGAN.

Allen, J.	*Ann Arbor.*
Andrews, J.	*Pawpaw.*
Arnold, S. R.	*Monro.*
Axford, S. M.	*Flint.*
Barnum, B.	*Schoolcraft.*
Beech, J. H.	*Coldwater.*
Bennett, J.	*Centreville.*
Brodie, Wm.	*Detroit.*
Brown, J. A.	*do.*
Christian, E. P.	*do.*
Clapp, H. C.	*Pawpaw.*
Cobb, H. P.	*Detroit.*
Cobb, L. H.	*do.*
Cone, E. D.	*Hillsdale.*
Cox, Edward	*Battle Creek.*
Davenport, Lewis	*Detroit.*
Denton, S.	*Ann Arbor.*
Douglass, S. H.	*do.*
Durton, Samuel	*do.*
Egery, Edward A.	*Three Rivers, St. Joseph Co.*
Fanner, C. P.	*Ann Arbor.*
Ford, Corydon L.	*do.*
French, S. B.	*Battle Creek.*
Gorton, J. C.	*Detroit.*
Gunn, Moses	*do.*
Haze, W. H.	*Farmington.*
Hitchcock, Homer O.	*Kalamazoo.*
Inglis, R.	*Detroit.*
Jenks, E. W.	*Sturgis.*
Johnson, G. K.	*Pontiac.*
Kibbie, J.	*Port Huron.*
Kinney, M. C.	*Lapeer.*
Klein, P.	*Detroit.*
Leach, E.	*Owassa.*
Leasia, J. A.	*Williamston.*
Leete, Albert E.	*Romeo.*
†Leland, A. L.	*Detroit.*
McCollom, C.	*Romeo.*

Murray, Andrew	*Niles.*
Nims, Dwight	*Homer.*
Paddack, J.	*Pontiac.*
Palmer, A. B.	*Ann Arbor.*
Patterson, M. A.	*Tecumseh.*
Pierce, James L.	*Corunna.*
Pitcher, Zina	*Detroit.*
Platt, A.	*Grand Rapids.*
Potter, A. O.	*Ann Arbor.*
Rice, R. S.	*Detroit.*
Richardson, S. D.	*Three Rivers, St. Joseph Co.*
†Robinson, L. G.	*Detroit.*
Russell, Geo. B.	*do.*
Sager, A.	*Ann Arbor.*
Seely, T. P.	*do.*
Shepard, Charles	*Grand Rapids.*
Smith, J. S.	*Armada.*
Stebbins, N. D.	*Detroit.*
Stewart, Morse	*do.*
Stockwell, C. M.	*Port Huron.*
Stone, A. R.	*Almonte.*
Storm, A. R.	*do.*
Tanner, C. P.	*Ann Arbor.*
Taylor, Hen.	*Mount Clemens.*
Tillson, Philo	*Romeo.*
Tomkins, L. D.	*Cassapolis.*
Van Deusen, E. H.	*Kalamazoo.*
Wells, B. P.	*Niles.*
Wells, E.	*Ann Arbor.*
White, John B.	*Saginaw.*

IOWA.

Adler, John	*Davenport.*
Allen, J. R.	*Keokuk.*
Armour, Samuel G.	*do.*
Arnold, Edward A.	*Davenport.*
Baker, John W. H.	*do.*
Barrows, Egbert S.	*do.*
Carpenter, Horace	*Blue Grass.*
Cary, L. H.	*Toledo.*
Edwards, T. O.	*Dubuque.*

Elbert, Jno. D.	*Keosaqua, Van Buren Co.*
Ely, Jno. F.	*Cedar Rapids.*
Ford, E. R.	*Keokuk.*
†Fountain, E. J.	*Davenport.*
Francis, E. C.	*Keokuk.*
Horr, Asa	*Dubuque.*
Hughes, J. C.	*Keokuk.*
Iles, Thomas J.	*Davenport.*
Lay, Sam. C.	*Dubuque.*
Lewis, R. S.	*do.*
Lyons, W. B.	*Huntington.*
Malcolm, A. B.	*Dubuque.*
McCurdy, A. T.	*Keokuk.*
McGugin, D. L.	*do.*
Meeker, Daniel	*do.*
Rauch, J. H.	*Burlington.*
Sanborn, J. E.	*Keokuk.*
Sandford, John F.	*do.*
Siveter, Thomas	*Salem.*
Sprague, Joseph	*Dubuque.*
Taylor, M. K.	*Keokuk.*
Tomson, J. J.	*Davenport.*
Van Patten, N.	*do.*
Watson, Wm.	*Dubuque.*
White, J. W.	*Stockport.*
Witherwax, J. M.	*Davenport.*

WISCONSIN.

Adams, Homer	*Janesville.*
Ayres, D. Cooper	*Green Bay.*
Bartlett, John K.	*Milwaukee.*
Bicknell, S. W.	*Beloit.*
Brisbane, W. Henry	*Arena.*
Brown, J. J.	*Madison.*
Carr, E. S.	*do.*
Castleman, A. L.	*Delafield.*
Chapman, C. B.	*Madison.*
Douseman, John B.	*Milwaukee.*
McKinley, Hays	*Kenosha.*
Meachem, John G.	*Racine.*
Pease, C. G.	*Janesville.*

Stoddard, Charles L.	*East Troy.*
Thorn, Samuel S.	*Milwaukee.*
Van Duzen, Harmon	*Mineral Point.*
Wells, Wm. L.	*Milwaukee.*
Wilbur, George	*Mineral Point.*

MINNESOTA.

Ford, John D.	*Winona.*
Hand, D. W.	*St. Paul.*
Le Boutillier, C. W.	*St. Anthony.*
Murphy, John	*do.*
Potts, Thomas R.	*St. Paul.*

CALIFORNIA.

Harvey, O.	*Placerville.*
Little, William B.	*San Francisco.*

KANSAS.

Logan, C. A.	*Leavenworth.*
Stormont, D. W.	*Topeka.*
Tinks, Tiffin	*Leavenworth.*

DACOTAH TERRITORY.

Jayne, Wm.	*Yankton.*

CHEROKEE NATION.

Ross, R. D.	*Grand Sabine.*

UNITED STATES ARMY.

Antiselle, Thomas	Porter, J. B.
Blake, Eli Whitney	Smith, Gouverneur M.
Clements, B. A.	Taylor, M. K.
Cuyler, J. M.	Teats, Sylvester
Jarvis, N. S.	Tripler, Chas. S.
McLaren, A. N.	Wirtz, Horace Ralph
Moses, Israel	Wood, R. C.
Mott, Alex. B.	

UNITED STATES NAVY.

Bache, B. F.
†Barrington, Samuel
Clymer, Geo.
Delany, M. G.
Dillard, T.
Eversfield, Charles
Greene, J. M.
Horner, G. R. B.
Lockwood, John
Maxwell, C. D.
Pinkney, Ninian
Shippen, Edward
Smith, Thomas L.
Wood, W. Maxwell

FOREIGN.

W. F. Atlee,
W. H. Berry,
R. R. McIlvaine,
N. J. Pittman,
A. J. Semmes,

Delegates from the *American Medical Society in Paris.*

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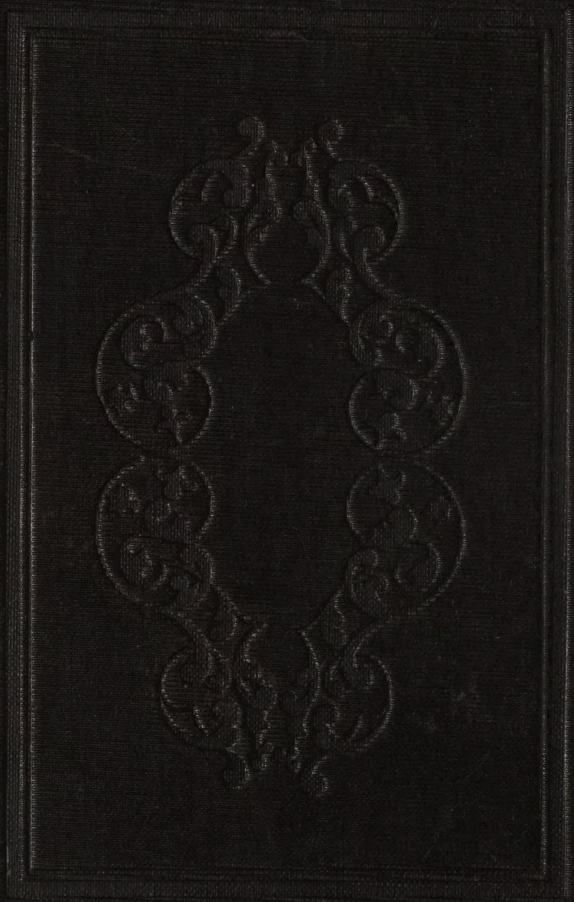
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